

4.0 Identification of SWMUs, AOCs, and Other Undesignated Areas

Tables 4-1 through 4-3 provide descriptions of the SWMUs, AOCs, and other undesignated areas that have been identified at, or associated with, the Topock Compressor Station. The location of each SWMU, AOC, and other undesignated area is depicted in Figure 4-1. These three types of units have been identified as part of the RCRA corrective action activities that began with the RFA in 1987. The following provides a brief history of the identification of RCRA sites at the Topock Compressor Station.

The results of the RFA that USEPA conducted at the Topock Compressor Station in 1987 indicated that 13 SWMUs (Units 4.1 through 4.13) were identified at the facility (Kearny 1987). Although the text of the RFA Report indicates the number of SWMUs to be 16, only 13 SWMUs are identified and discussed in that report. SWMUs identified during the RFA were discovered through records review, data evaluation, interviews, and a visual site inspection (Kearny 1987).

When the CACA was developed by DTSC in 1996, a total of 10 SWMUs (SWMU 1 through SWMU 10) and 3 AOCs (AOC 1 through AOC 3) were identified at the Topock Compressor Station (DTSC 1996). Eight of the SWMUs identified in the CACA were also identified as SWMUs during the RFA. However, four SWMUs identified in the RFA (Units 4.3 through 4.6) were not included in the CACA. In addition, the CACA combined two of the RFA SWMUs (Units 4.12 and 4.13) into one SWMU, and listed two additional SWMUs (SWMUs 3 and 4) and three AOCs (AOCs 1 through 3) that were not identified in the RFA. Table 4-1 provides a cross-index of SWMUs between the RFA and the CACA.

In October 2000, PG&E developed the *Work Plan for Additional Soil Sampling* (E&E 2000b). The Work Plan identified ten potentially impacted areas associated with the Topock Compressor Station that required investigation. These areas were identified through a review of historic aerial photographs, interviews with knowledgeable employees, a review of chemical use processes, and a field reconnaissance within and around the compressor station (E&E 2000b). In a letter to PG&E dated January 4, 2001, DTSC indicated that these ten areas are considered to be AOCs under the RCRA corrective action process (DTSC 2001). These 10 areas have subsequently been identified as AOCs 4 through 13 (Table 4-2).

In February 2005, PG&E completed the Draft RFI (CH2M HILL 2005) that incorporated the results of additional historic research. In a letter dated July 13, 2006 providing DTSC review of that additional historic research, DTSC formally designated two previously undesignated units, the Railroad Debris site and the Auxiliary Jacket Cooling Water Pumps, as AOCs 14 and 15, respectively. In addition, four new AOCs, AOC 16 through AOC 19, were formally identified (see Table 4-2). These new AOCs were identified based on incomplete COC evaluation, incomplete extent evaluation (or a combination of COC and extent evaluation), or lack of investigation (DTSC 2006a). In May 2007, a unit consisting of the industrial floor drains, AOC 20, was added as a result of a request by DTSC in its May 9, 2007 (DTSC 2007d) comment letter on the Final RFI/RI Volume 1.

In addition to sites that have been identified and formally designated as SWMUs and AOCs by USEPA (Kearny 1987) and by DTSC (DTSC 1996, 2001, 2006), two other potentially impacted areas have been identified in the vicinity of the Topock Compressor Station during review of historic facility information (see Table 4-3). These areas consist of an area where asbestos-covered piping may potentially have been buried east of the access road for the Old Evaporation Pond (referred to as the Potential Pipe Disposal Area), and the former 300B Pipeline Liquids Tank location.

Aerial photos were evaluated in conjunction with information gathered during site visits to determine if there were areas of white powdery residue that were not already identified. No additional areas of white powdery residue were found. If a white powdery substance is found at any of the units, PG&E will notify DTSC and conduct further investigation where necessary.

In summary, there are currently 10 SWMUs, and 20 AOCs that have been formally designated at the Topock Compressor Station. Two additional potentially impacted units have been identified as the result of recent site reconnaissance activities. The SWMUs, AOCs and other areas were identified and formally designated at various points in the RCRA corrective action process at Topock. Detailed information regarding each SWMU, AOC, and other undesignated areas is provided in the following sections.

Constituents of potential concern (COPCs) identified for each unit are based on available information regarding historic activities at the unit and overall compressor station operations. Based on regulatory review, additional COPCs have been identified by DTSC at some units (DTSC 2006b and 2007e). These additional COPCs are described in the discussion of each SWMU, AOC, or unit. As appropriate, these additional COPCs will be addressed as part of the RFI/RI soil investigation program currently being developed. Tables 4-1, 4-2, and 4-3 also provide a summary of the description, constituents of potential concern, and other pertinent information concerning the SWMUs, AOCs, and other undesignated areas identified at the Topock Compressor Station.

4.1 SWMUs and AOCs Identified in the RCRA Facility Assessment and Corrective Action Consent Agreement

This section presents information regarding the SWMUs identified in the USEPA RFA (Kearny 1987) and the CACA (DTSC 1996). In the RFA, SWMUs were designated by units (e.g., Unit 4.1), while in the CACA, SWMUs are designated by SWMU (e.g., SWMU 1). As previously indicated, there is not a direct correlation between SWMU designations in the RFA and CACA.

4.1.1 SWMU 1– Former Percolation Bed

SWMU 1, the Former Percolation Bed, was located outside the facility fenceline in Bat Cave Wash as depicted in Figure 4-1. About half of SWMU 1 is located on PG&E property; the remainder of SWMU 1 is located on property owned by the HNWR and managed by the USFWS.

4.1.1.1 Description and History

From 1951, when the compressor station first began operation, until 1970, when injection well PGE-08 went into operation, wastewater generated at the facility was discharged to Bat Cave Wash.

Based on historic aerial photographs, it appears that during the 1950s, wastewater was released to the wash without any impoundment. Wastewater was released to the wash through a pipe that ran from the sludge drying beds area in the lower yard down the slope into Bat Cave Wash. Aerial photographs from that time period show a light-colored flow in the wash that originates at the discharge point and, at times, extends to the railroad tracks about 1,600 feet downstream. The light-colored flow does not extend beyond the railroad tracks.

Based on aerial photograph and document review, in about 1964 a percolation bed was created in Bat Cave Wash west of the former sludge drying beds area (PG&E 1968a). PG&E documentation indicates that the bed had an area of approximately 17,600 square feet (PG&E 1968a). Wastewater was discharged to this area from two pipelines (one 10-inch diameter pipe and one 4-inch-diameter pipe) that ran from the lower yard down into Bat Cave Wash. The bed was not lined and discharged wastewater was allowed to percolate into the ground and/or evaporate in this area. A former employee reported that the percolation bed sometimes crusted over, and that it was periodically moved within the wash, but was within the general area depicted in Figure 4-1 (Russell 2006b).

Ponded water can be seen in this general area of the percolation bed in aerial photographs from 1967 and 1969. In addition, remnants of the 4-inch-diameter discharge pipe are also present on the slope above Bat Cave Wash. For the purposes of this RFI, the entire discharge area within Bat Cave Wash (i.e., the percolation bed area) will be addressed under SWMU 1.

Wastewater discharged to Bat Cave Wash consisted primarily of cooling tower blowdown (about 95 percent) and a minor volume of effluent from an oil/water separator and other facility maintenance operations (about 5 percent) (PG&E 1993). Based on information from PG&E (1968a), during the late 1960s, an average of about 48,500 gpd of cooling water blowdown were discharged to Bat Cave Wash, with a high of about 64,300 gpd in July and a low of about 25,600 gallons per day in February.

From 1951 until 1964, cooling water blowdown was not treated prior to being released to the wash. The cooling water blowdown contained chromium, including both Cr(III) and Cr(VI). From 1964 to 1969, the cooling water blowdown was treated with a one-step system to reduce Cr(VI) in the wastewater to Cr(III) prior to discharge to the wash. Although the process converted Cr(VI) to Cr(III), the concentration of Cr(T) was apparently not reduced. Concentrations of Cr(T) in the wastewater discharged to Bat Cave Wash, as measured from samples collected in the late 1960s, ranged from 13.81 to 14.41 ppm (PG&E 1968a). Wastewater discharged to Bat Cave Wash also contained high concentrations (4,000 to 11,000 mg/L) of TDS, primarily sodium chloride (Water Board 1969; PG&E 1993). Beginning in late 1969, cooling water blowdown was treated with a two-step system to reduce Cr(VI) to Cr(III), and then to remove Cr(III) from the wastewater prior to discharge to Bat Cave Wash. Following the two-step treatment, Cr(VI) concentrations in the wastewater were generally reduced to below 1 mg/L (Mittelhauser 1986).

The continuous discharge of wastewater to Bat Cave Wash ceased in May 1970 when injection well PGE-08 was brought online. However, between May 1970 and September 1971 (when Pond 1 of the Old Evaporation Ponds was completed), some treated wastewater may have been temporarily discharged to the percolation bed in Bat Cave Wash when injection well PGE-08 was offline for repairs or maintenance.

4.1.1.2 Constituents of Potential Concern

The following COPCs were identified in the CACA (DTSC 1996) for SWMU 1: Cr(T), Cr(IV), copper, nickel, zinc, electrical conductivity, and pH. Although not specified as such, these COPCs appear to be for all media. The following paragraphs present the rationale for the selection of media-specific COPCs for SWMU 1.

During the time frame from 1951 to 1970, SWMU 1 received wastewater consisting of cooling tower blowdown and the effluent from the OWS. The wastewater was released to the surface of the wash, thereby resulting in impacts to soil. Wastewater also penetrated the soil column and migrated to the water table, resulting in impacts to groundwater.

Cooling tower blowdown during the 1951 to 1970 time period contained Cr(VI)-based products that were added to the cooling water to inhibit corrosion, minimize scale, and control biological growth. In addition, due to evaporation loss in the cooling towers, metals and naturally-occurring other inorganics (e.g., sodium chloride) in the cooling water were concentrated. In addition, copper, nickel and zinc are wear metals that could have been released from the tubes in the heat exchangers and therefore been contained in the blowdown.

The blowdown may have also been slightly acidic due to the addition of sulfuric acid for pH control in the cooling towers. Although the cooling towers were intended to operate at a neutral pH (pH 7), there may have been occasional upsets. The two-step wastewater treatment system also resulted in a neutral or near-neutral effluent pH during normal operating conditions. There is no record of any pH adjustment following chromium reduction in the single-step treatment process. Therefore it is possible that the treated blowdown from the single-step treatment system used from approximately 1964 to 1968 was acidic.

The oily water directed to the OWS was derived from a variety of sources, including leaks and drips from plant equipment, and drainage from the steam cleaning area. The effluent from the OWS contained entrained heavy hydrocarbons derived from compressor oil and potentially other sources such as steam cleaning operations. Sources of TPH in the oily water treated by the OWS are expected to consist of high boiling point straight- and branched-chain hydrocarbons analyzable as TPH. An effluent sample collected in November 1986 showed TPH concentrations at 3 mg/L (Brown and Caldwell 1986). The effluent may also have contained minor amounts of residual solvents; however, volatile compounds are not expected to have remained in the wastewater once it was released to Bat Cave Wash and therefore are not considered COPCs. Wear metals such as copper, lead, nickel, and zinc could also have been contained in the oily water treated in the OWS.

In 1985 and 1986, samples were collected from facility makeup water, cooling water blowdown, treated wastewater (including both cooling water blowdown and oily water), sludge samples from the precipitation tank, and water and solids samples from the

evaporation ponds (Brown and Caldwell 1985a-b, 1986). The samples were analyzed for PCBs, VOCs, and metals, including mercury. Based on these data, metals of concern consist of Cr(T), Cr(VI), copper, lead, nickel, and zinc.

Several storm drains apparently discharge from the station to Bat Cave Wash. The area drained by these storm drains is not known, but would most likely include portions of the lower yard. Stormwater runoff from the lower yard could historically have contained TPH and polynuclear aromatic hydrocarbons (PAHs) associated with pipeline liquids and potentially waste oil sprayed on station roads for dust control. Finally, a former employee reported that a mercury spill at the meter building had entered a storm drain that discharges to Bat Cave Wash (Russell 2006b). No information is available regarding the amount of mercury that entered the storm drain, or whether the material entered Bat Cave Wash.

A plant employee reported that he was personally responsible for welding a cap onto an approximately 12-inch-diameter vertical pipe located in Bat Cave Wash. The pipe apparently looked like a regular well casing. The casing only extended a small amount above the ground, and the area where the pipe was located is now covered by an additional 18 to 24 inches of sediment. The pipe had been covered with a wooden cover and gravel, and there were no materials of any kind visible in the pipe (Russell 2006b). This well casing may be one of the exploratory borings installed in 1950 to evaluate the potential water supply for the proposed Topock Compressor Station (PG&E 1950).

Based on the foregoing, the COPCs for soil within SWMU 1, identified by PG&E, consist of Cr(T), Cr(VI), copper, lead, mercury, nickel, zinc, pH, TPH, and PAHs. COPCs for groundwater associated with SWMU 1 consist of Cr(T), Cr(VI), copper, lead, nickel, zinc, electrical conductivity, pH, and TPH. DTSC also identified all Title 22 metals, VOCs, and all other SVOCs in addition to PAHs as COPCs for this unit (DTSC 2006b).

4.1.2 SWMU 2 – Inactive Injection Well (PGE-08)

Inactive injection well PGE-08 is located within the facility fenceline in the lower yard on the western side of the compressor station (Figure 4-1).

4.1.2.1 Description and History

Inactive injection well PGE-08 was installed in 1969 to facilitate underground injection of treated wastewater generated during facility operations, pursuant to Water Board Order 69-25. The order required PG&E to cease percolation into Bat Cave Wash by January 1, 1970. PG&E requested an extension of 5 months to June 1, 1970 (PG&E 1984a). The original boring for the well extended to approximately 530 feet bgs (Dames and Moore 1969).¹²

Unconsolidated sediments were encountered in the boring to a depth of about 175 feet bgs, and below 175 feet, the boring penetrated hard, fractured crystalline bedrock (Dames and Moore 1969). The original well was cased with 6-inch-diameter solid steel casing to a depth of 405 feet bgs, with the remainder of the borehole in the fractured bedrock being left uncased. Yield tests on the well provided short-term flow rates ranging from 20 to 51 gpm, and a long-term flow rate of about 26 gpm, with a calculated transmissivity of 10,000 gallons

¹² The Dames and Moore report (1969) lists the total depth of the boring in various places at 530, 540, and 548 feet bgs. The electric log included in the report lists a driller's report of 530 feet, but a logged depth of 525 feet bgs.

per day per foot (Dames and Moore 1969). This is equivalent to a hydraulic conductivity of 3.8×10^{-3} centimeters per second using the open hole length of 125 feet (E&E 2004).

Water quality data collected following completion of the well indicated that a distinct stratification was present at about 280 feet bgs (Dames and Moore 1969). Above 280 feet bgs, brackish water was present with TDS values ranging from 3,500 to 8,900 ppm. Below 280 feet bgs, water was saline, with TDS values ranging from 11,000 to 14,000 ppm.

Following testing, 2-7/8-inch-diameter tubing was placed inside the well casing and anchored to the bottom of the casing with a packer (Dames and Moore 1969). The annulus between the casing and the tubing was to be filled with a non-corrosive fluid (diesel fuel was suggested, but it is unknown what, if any, fluid was actually used) (Dames and Moore 1969). The design allowed for the injection of wastewater into the lower section of the well through the tubing.

PGE-08 remained unused for approximately one year after it was completed. On or about April 1, 1970, freshwater was injected into the well for testing purposes. Injection of treated wastewater began on May 30, 1970 (Dames and Moore 1970). Several days after wastewater was initially injected into the well, the pressure rose dramatically. Hydrochloric acid (HCl) was initially injected into the well (50 gallons of 38 percent HCl) in an attempt to unclog the well. Handwritten notes (PG&E 1984a) indicate that the purpose was to acidize the well in an attempt to clean the well and alleviate high backpressure in the well. It was subsequently determined that the bottom 15 feet of the well had collapsed.

In June, 1970, the well was cleaned out and deepened to 562 feet bgs. A stainless steel well screen and liner assembly was installed in the well and set at a depth of 405 to 554 feet bgs (Dames and Moore 1970). A high-pressure pump was also installed to increase injection pressure. In addition, PG&E installed diatomaceous earth filters to remove the small quantities of precipitate noted in the injection water. Well PGE-07 was also deepened at this time and used as a monitoring well during active injection at well PGE-08.

Injection well PGE-08 was used for the injection of treated wastewater from May 1970 through August 1973. A former employee reported that the well would periodically clog, and he recalled at least one event where sulfuric acid was injected into the well in an effort to unclog it. The employee recalled 2,800 gallons of sulfuric acid being injected into the well (Russell 2006b). Between August and December 1973, treated wastewater was discharged alternately on a 3-day cycle between the injection well and the first of four newly constructed lined evaporation ponds (i.e., SWMU 10, Pond 1). In October 1973, the salinity of the water in the upper portion of the well began to increase notably (PG&E 1984a). In December 1973, all treated wastewater was permanently routed to the evaporation ponds. Since December 1973, PGE-08 has been completely inactive; it has only been used for routine groundwater sample collection.

PG&E estimated that during the injection period (June 1970 through December 1973), approximately 29.4 million gallons of treated wastewater were injected into this well (PG&E 1987). Handwritten notes by an unknown author ca. 1984 indicated that 42 million gallons of wastewater had been injected into the well (PG&E 1984a). Approximately 95 percent of the wastewater generated at the facility was from cooling tower blowdown, and the remaining 5 percent consisted of effluent from an oil/water separator and other

facility maintenance operations (PG&E 1993). Treated wastewater sent to PGE-08 for subsurface injection generally contained 1 ppm or less of chromium (Mittelhauser 1986).

The total volume of blowdown discharged during any given day, month, or year is difficult to estimate because the volume discharged varied on a daily basis depending on load (i.e., how much gas was compressed), ambient temperature (hotter temperatures resulted in increased blowdown), and other operational factors. In addition, it appears that overall annual blowdown rates decreased over the years. The first recorded blowdown rate, for 1968, indicated an average of 48,500 gpd or roughly 17.7 million gallons per year. Currently, the station only produces about 6 million gallons per year (16,400 gpd). Handwritten notes from 1980 (PG&E 1980a) indicate the average annual blow down rates ranged from approximately 8,000 gpd to approximately 17,600 gpd during the period between 1975 and 1980.

4.1.2.2 Constituents of Potential Concern

PGE-08 was used for the subsurface injection of facility wastewater. Treated wastewater was injected directly into groundwater at depths exceeding 405 feet bgs; therefore, groundwater is considered the medium of concern at this SWMU. There is no evidence of soil contamination at SWMU 2 and the area around SWMU 2 (i.e., the soil) has been designated as AOC 2; therefore, no future soil evaluation is necessary. Releases to groundwater associated with this SWMU will be evaluated as part of Volume 2 (Groundwater) of the RFI/RI.

There were no significant modifications in the handling and treatment of the cooling tower blowdown and the OWS effluent during the operation of the injection well from 1970 to 1973. Therefore, the COPCs for groundwater associated with SWMU 2 consist of Cr(T), Cr(VI), copper, lead, nickel, zinc, electrical conductivity, pH, and TPH. There are no COPCs for soil.

4.1.3 SWMUs 3 and 4: PG&E Inactive Well #6 (PGE-06) and Inactive Well #7 (PGE-07)

PGE-06 and PGE-07 are located on HNWR to the property north of the compressor station (Figure 4-1).

4.1.3.1 Description and History – Inactive Well #6 (PGE-06)

Well PGE-06 was drilled and completed in June 1964 (Peaker 1964). Due to relatively poor quality of the water extracted from wells near PG&E property, water for the compressor station is derived from wells located on the eastern side of the Colorado River. However, PG&E maintained these wells near their property to provide a backup source of water for the facility. PGE-06 was constructed as a replacement for PG&E wells 1 and 2 (also known as PGE-01 and PGE-02) that were to be abandoned during construction of I-40. Because PGE-06 was a standby well, there are no records that indicate this well was ever used to produce water for the facility. However, during construction of I-40, the grading contractor (E.L. Yeager Construction Company) used the well to produce water for dust suppression purposes (PG&E 1964a).

Based on the well log supplied by the driller (Peaker 1964), well PGE-06 was drilled to 180 feet bgs. Conductor casing consisting of 20-inch-diameter steel pipe was installed from the ground surface to 19 feet bgs. The well was constructed of solid steel casing, 14 inches in diameter, from the ground surface to a depth of 110 feet bgs. The screened section of the well runs from 110 to 180 feet bgs, and it consists of 14-inch-diameter perforated steel casing.

Initial tests of water quality from well PGE-06 indicated that water within the well was of poor quality and that it was unfit for domestic or industrial use (Hornkohl 1964). The results indicated a TDS concentration of about 3,600 ppm. Chromates were detected in the sample at a concentration of 32.5 ppm. Chromium concentrations in groundwater from well PGE-06 are most likely related to the discharge of wastewater to Bat Cave Wash. There is no evidence of the disposal of wastes into or around well PGE-06. The Hornkohl laboratory data sheet is provided in Appendix C.

Well PGE-06 is currently being sampled on a routine basis as part of the groundwater monitoring program for the Topock Compressor Station.

4.1.3.2 Description and History – Inactive Well #7 (PGE-07)

Although it is unclear exactly when this well was drilled, it was completed sometime around September 1964 (PG&E 1964b). Along with well PGE-06, PGE-07 was constructed as a replacement for PG&E wells 1 and 2 (also known as PGE-01 and PGE-02) that were to be abandoned during construction of I-40. Because PGE-07 was a standby well, there are no records that indicate this well was ever used to produce water for the facility.

Reportedly, well PGE-07 was originally drilled and constructed to the same specifications as well PGE-06 (Peaker 1964). In conjunction with the installation of injection well PGE-08 in August 1969, well PGE-07 was deepened to act as a monitoring well during the injection of wastewater into the subsurface (Dames and Moore 1969). Well PGE-07 was deepened from 180 feet bgs to 330 feet bgs. A 7-inch-diameter liner was installed from the ground surface to 195 feet bgs. From 195 feet bgs to 330 feet bgs, the borehole was left open (i.e., uncased).

There is no evidence of the disposal of wastes into or around well PGE-07. During wastewater injection operations at well PGE-08, well PGE-07 was used as a monitoring well.¹³ Well PGE-07 is currently being sampled on a routine basis as part of the groundwater monitoring program for the Topock Compressor Station.

Information regarding the destruction methods used for wells PGE-01 and PGE-02 is not currently available. If additional information on the destruction of these wells is obtained and the information suggests a potential concern, further evaluation may be conducted if necessary.

4.1.3.3 Constituents of Potential Concern

Although groundwater at PG&E Inactive Wells #6 and #7 (wells PGE-06 and PGE-07) is impacted by the release of the wastewater into Bat Cave Wash during the period from 1951 to 1970, there is no evidence of either the intentional or incidental disposal of wastes into these wells. Therefore, there are no COPCs associated with SWMUs 3 and 4.

¹³ The response seen in PGE-07 during injection operations at well PGE-08 is addressed in Volume 2 of the RFI.

4.1.4 SWMU 5 – Sludge Drying Beds

The former sludge drying beds were located within the facility fenceline in the southern part of the lower yard (Figures 4-1 and 4-2).

4.1.4.1 Description and History

The sludge drying beds were constructed in 1951 along with the rest of the compressor station. The two sludge drying beds were located directly adjacent to one another. The closure report for this unit indicates that each bed was approximately 20 feet wide by 50 feet long. Both beds sloped longitudinally with the upper end at grade level and the lower end about 2 feet below grade. The walls and floors of both beds were constructed of 8-inch-thick concrete. A drain line ran from the beds to the Transfer Sump (SWMU 9) to facilitate the removal of liquids (Mittelhauser 1990a).

The drying beds were used from 1951 until April 1962 to dehydrate lime sludge generated by a water-conditioning process used at the facility (PG&E 1962, 1968b). In historical aerial photographs from the mid-1950s, the drying beds contain whitish material. A whitish area is also present just south of the sludge drying beds. In addition, a similar whitish area is present in those photographs at what is now called the Railroad Debris site (Section 4.2.11). Former employees reported that dehydrated lime sludge was trucked to the Railroad Debris site (AOC 14) and sprayed there (Russell, 2006a). A light area is also present in what is now called the Debris Ravine (AOC 4; Section 4.2.1); however, the coloration in the Debris Ravine is much darker than that at the sludge drying beds or Railroad Debris Site.

From 1964 through 1969, a treatment pond constructed within one of the beds was used to treat chromium-bearing wastewater (PG&E 1968a). Wastewater was allowed to flow through the pond and was injected with sulfur dioxide to reduce Cr(VI) to Cr(III) prior to discharge.

From 1969 through October 1985, the drying beds were used to dehydrate chromic hydroxide sludge generated by the two-step wastewater treatment system (SWMUs 6 through 9) prior to disposal. The chromate hydroxide sludge discharged into the drying beds was found to contain 37,500 mg/kg Cr(T) and 4 mg/kg Cr(VI) (Mittelhauser 1986). The volume of chromic hydroxide sludge disposed of offsite was about 15,000 gallons per year (PG&E 1984b).

A 1970 letter (PG&E 1970) indicates that PG&E was planning on burying the initial batch of sludge on or near the compressor station; however, there is no information to suggest that this occurred (Russell 2006b). Water Board Order 70-73 was issued on December 10, 1970 (Water Board 1970), and it appears that the chromium hydroxide sludge was disposed of at Needles Landfill from that time until 1983. As discussed in Section, shipping documentation compiled by PG&E indicated that the amount of sludge disposed of each year was highly variable, and it appears that the sludge drying beds had some storage capacity. Disposal of the chromium sludge at Needles Landfill was discontinued by 1984. From January 1984 to May 1985, the dried sludge was transported offsite to an approved Class I hazardous waste facility (PG&E 1984b).

Use of both sludge drying beds ceased in October 1985. Closure of the drying beds was initiated in December 1988, and most of the beds were removed by February 1989.

(Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of the sludge drying beds are presented in Section 5.0.

4.1.4.2 Constituents of Potential Concern

The sludge drying beds were clean closed by PG&E between November 1988 and February 1989, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. At the time of closure, no evaluation of organic constituents potentially present in the wastewater (as a result of treated water discharge from the OWS) was conducted. COPCs potentially associated with discharge of treated effluent from the OWS include TPH and PAHs. There is no information to suggest that significant amounts of solvents were used at Topock. Only small volumes of VOCs were used at Topock, such as paint thinner and cleaning solvent (PG&E 1980a). Steam cleaning was used for most equipment such as compressor engines (Russell 2006b). Any VOCs present in the wastewater that were released to the environment with the wastewater would have quickly evaporated due to the high temperatures typically encountered at the station. Therefore, PG&E has identified TPH and PAHs as COPCs for soil associated with SWMU 5. COPCs are anticipated to be limited to soil only. DTSC also identified VOCs and all other SVOCs (in addition to PAHs) as COPCs at this unit (DTSC 2006b).

4.1.5 SWMU 6 – Chromate Reduction Tank

The chromate reduction tank was a component of the two-step wastewater treatment system installed at the compressor station in late 1969.¹⁴ This system consisted of the chromium reduction tank to reduce Cr(VI) in the wastewater to Cr(III) (Step 1), and a precipitation tank for removing chromium from the wastewater (Step 2). This system also employed the sludge drying beds for drying to dry precipitated solids, as well as miscellaneous transfer tanks and sumps, pumps, piping, and valves. The layout of this system is depicted in Figure 4-2. The two-step treatment system remained in service from 1969 through October 1985, when the use of a chromium-based inhibitor in the cooling water was replaced with a phosphate-based inhibitor. The chromate reduction tank was formerly located within the facility fenceline in the southern end of the lower yard (Figures 4-1 and 4-2).

4.1.5.1 Description and History

The chromate reduction tank was approximately 10 feet high and 5 feet in diameter, with a capacity of 1,500 gallons (PG&E 1982; Kearny 1987). The tank was of steel construction and had an open top. The tank was partially set below grade within a pit that measured 10 feet wide by 10 feet long by 6 feet deep. The pit was supported on all four sides with wooden retaining walls; however, the bottom of the pit was not lined or paved (Kearny 1987).

Cooling water blowdown containing chromium flowed by gravity from the cooling towers to the chromate reduction tank via a 3-inch-diameter steel pipe. A maximum combined flow of 30,000 gpd were discharged continuously from the cooling towers into this tank

¹⁴ Historic documents indicate that the system was installed and began operation sometime between November 1969 and March 1970.

(Mittelhauser 1986). Wastewater in the tank was injected with sulfur dioxide gas to maintain the pH between 2.9 and 3.2 units. Within this pH range, Cr(VI) was reduced to Cr(III). Treated wastewater was then discharged by gravity flow through a 3-inch-diameter steel pipe into the transfer sump (SWMU 9; Unit 4.8) (Section 4.1.8).

Wastewater samples collected from the cooling towers contained Cr(T) and Cr(VI) ranging from 2.6 to 7.8 mg/L and 0.62 to 6.0 mg/L, respectively (Mittelhauser 1986). Concentrations of Cr(T) and Cr(VI) in the effluent from the chromate reduction tank were found to be at 23 mg/L and 0.42 mg/L, respectively (Mittelhauser 1986). No indication of any release was observed during a facility inspection performed as part of the RFA (Kearny 1987).

The chromate reduction tank was removed from service as part of the chromium treatment system in October 1985. However, starting in November 1985, the tank was reportedly used as a holding tank for an unspecified period of time (Kearny 1987).¹⁵ As a holding tank, it received treated effluent from the OWS (Unit 4.4) prior to discharge of the treated effluent to the evaporation ponds.

Closure of the chromium treatment system was completed between December 1988 and March 1990. Physical removal of the chromate reduction tank occurred during Phase 2 of the hazardous waste management facilities closure process between November 1989 and March 1990 (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of the treatment system are presented in Section 5.0.

4.1.5.2 Constituents of Potential Concern

The chromate reduction tank was clean closed by PG&E between November 1989 and March 1990, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. The closure report identified oil stained soil on the south wall. No apparent VOCs, TPH, or PAH analysis was conducted. SWMU 6 received wastewater from the OWS. COPCs potentially associated with discharge of treated effluent from the OWS include TPH and PAHs. As discussed for SWMU 5, there is no information to suggest that significant amounts of solvents were used at Topock. Therefore, PG&E identified the COPCs for soil associated with SWMU 6 as TPH and PAHs. DTSC identified VOCs and all other SVOCs (in addition to PAHs) as COPCs at this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.1.6 SWMU 7 – Precipitation Tank

The precipitation tank was part of the two-step cooling water blowdown treatment system, and was located within the facility fenceline on the southern end of lower yard (Figures 4-1 and 4-2).

¹⁵ It is possible that the tank was used as holding tank up until October 1989 when the associated transfer sump was also removed from service.

4.1.6.1 Description and History

The tank was of steel construction and had an open top. The tank was about 15 feet high and 13 feet in diameter, with a capacity of 15,000 gallons (PG&E 1982; Kearny 1987). The tank was situated at grade level on a concrete pad.

The precipitation tank received effluent from the chromate reduction tank (SWMU 6; Unit 4.7) via the transfer sump (SWMU 9; Unit 4.8) from late 1969 through October 1985. Wastewater in this tank was injected with sodium hydroxide to maintain a pH between 6.7 and 7.2 units. Within this pH range, Cr(III) combined with the hydroxide ions to form a chromic hydroxide sludge that settled to the bottom of the tank (PG&E 1982). From 1970 to 1974 (the time during which injection well PGE-08 was operated), Poly Flocc II and ferric sulfate were used along with the sodium hydroxide to further enhance the removal of chromium (PG&E 1975, 1985a). The use of Poly Flocc II and ferric sulfate was discontinued sometime after 1974.

Treated effluent from the precipitation tank was routed to the process pump tank (SWMU 8; Unit 4.10) before ultimately being discharged.

From 1969 to May 1985, sludge from the tank was pumped via pipeline to the sludge drying beds (SWMU 5; Units 4.12 and 4.13) for dehydration prior to disposal (Water Board 1970; PG&E 1984b). From 1969 to 1983, dried sludge was transported to the Needles Landfill for disposal.¹⁶ Starting in 1984, dried sludge was transported offsite as a hazardous waste. From May 1985 to October 1985, the sludge was pumped directly from the precipitation tank and transported to an approved hazardous waste disposal facility (USEPA 1985).

The contents within the precipitation tank were sampled in October 1984 (Mittelhauser 1986). Wastewater in the tank contained 3.8 mg/L Cr(T) and 0.04 mg/L Cr(VI). Sludge within the tank contained 37,500 mg/kg Cr(T) and 4 mg/kg Cr(VI). No indication of a release was observed during a facility inspection performed as part of the RFA (Kearny 1987).

The precipitation tank was removed from service along with the rest of the treatment system in October 1985. Closure of the treatment system was completed during the time frame from December 1988 through March 1990. Physical removal of the precipitation tank occurred during Phase 1 of the hazardous waste management facilities closure process between December 1988 and February 1989 (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of the precipitation tank are presented in Section 5.0.

4.1.6.2 Constituents of Potential Concern

The precipitation tank was clean closed by PG&E between November 1989 and March 1990, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. Therefore, there are no current COPCs for this unit.

¹⁶ A 1970 letter (PG&E 1970) indicates that PG&E was planning on burying the initial batch of sludge on or near the compressor station; however, there is no documentation to confirm whether this onsite disposal occurred.

4.1.7 SWMU 8 – Process Pump Tank

The process pump tank was part of the two-step cooling water blowdown treatment system, and was located within the facility fenceline on the southern end of lower yard (Figures 4-1 and 4-2).

4.1.7.1 Description and History

The process pump tank consisted of a 1,500-gallon capacity steel holding tank about 8 feet high and 5.5 feet in diameter (PG&E 1982; Kearny 1987). The tank had an open top and was situated on a concrete pad.

The process pump tank was used as a temporary holding tank for wastewater discharged from the precipitation tank (SWMU 7; Unit 4.9). From May 1970 to December 1973 effluent was discharged primarily to injection well PGE-08 (SWMU 2); however, after Pond 1 (SWMU 10; Unit 4.11) was constructed in late 1971, it also received some of the discharged wastewater. From December 1973 to October 1987, the effluent was discharged to the old evaporation ponds (SWMU 10; Unit 4.11).

Chemical analysis data for wastewater held within the process pump tank are not available. No indication of a release was observed during a facility inspection performed as part of the RFA (Kearny 1987).

The process pump tank was removed from service along with the rest of the treatment system in October 1985. Closure of the treatment system was completed between December 1988 and March 1990. Physical removal of the process pump tank occurred during Phase 1 of the closure process between December 1988 and February 1989 (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of the treatment system are presented in Section 5.0.

4.1.7.2 Constituents of Potential Concern

The process pump tank was clean closed by PG&E between December 1988 and March 1990, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. At the time of closure, no evaluation of organic constituents potentially present in the wastewater (as a result of treated water discharge from the OWS) was conducted. COPCs potentially associated with discharge of treated effluent from the OWS include TPH and PAHs. As discussed earlier, there is no information to suggest that significant amounts of solvents were used at Topock and any VOCs present in the wastewater that were released to the environment would have quickly evaporated due to the high temperatures typically encountered at the station. Therefore, the COPCs for soil associated with SWMU 8 consist of TPH and PAHs. DTSC also identified VOCs and all other SVOCs (in addition to PAHs) as COPCs at this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.1.8 SWMU 9 – Transfer Sump

The transfer sump was part of the two-step cooling water blowdown treatment system, and was located within the facility fenceline in the southern end of the lower yard (Figures 4-1 and 4-2).

4.1.8.1 Description and History

The transfer sump was a pre-fabricated concrete septic tank with a capacity of 1,500 gallons (PG&E 1982; Mittelhauser 1990a). The sump measured about 3 feet in diameter and 20 feet deep, of which 18.5 feet was set below grade. The sump was also fitted with a concrete cover.

From 1969 to October 1985, effluent containing chromium from the chromate reduction tank (SWMU 6; Unit 4.7) was routed through the transfer sump to the precipitation tank (SWMU 7; Unit 4.9). Sometime around 1974, the transfer sump also started to receive treated effluent water from the OWS (either directly or through the chromate reduction tank) (Kearny 1987). From November 1985 to October 1989, the transfer sump received non-hazardous (i.e., phosphate-based) cooling water blowdown, and the effluent from the transfer sump was discharged directly to the old evaporation ponds (SWMU 10; Unit 4.11). Oily sludges and solids that accumulated in the transfer sump were periodically removed and transported to an offsite disposal facility (Kearny 1987). The transfer sump was removed from service in October 1989. Physical removal of the transfer sump occurred during Phase 2 of the hazardous waste management facilities closure process between November 1989 and March 1990 (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of this unit are presented in Section 5.0.

4.1.8.2 Constituents of Potential Concern

The transfer sump was clean closed by PG&E between December 1988 and March 1990, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. At the time of closure, no evaluation of organic constituents potentially present in the OWS treated effluent water was performed, although apparently oily sludges did accumulate in the sump. COPCs potentially associated with discharge of treated effluent from the OWS include TPH and PAHs. Therefore, PG&E has identified TPH and PAHs as the COPCs associated with SWMU 9. DTSC also identified VOCs and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.1.9 SWMU 10 – Old Evaporation Ponds

The old evaporation ponds were formerly located approximately 1,000 feet west-southwest of the compressor station (Figure 4-1). The site of the former ponds is (and was) on property owned by the HNWR and managed by the USFWS.

4.1.9.1 Description and History

This unit was comprised of four ponds, designated as Pond Nos. 1, 2, 3, and 4, with Pond No. 1 being the northernmost pond and Pond No. 4 being the southernmost pond. Pond No. 1 was completed in 1971 and Pond Nos. 2 through 4 were completed in 1974.

The ponds occupied a total surface area of about 181,000 square feet (4.15 acres). Each pond was lined with a 20-millimeter PVC synthetic liner. The liners were underlain by a layer of sand at least 4 inches thick, and overlain by a 1-foot-thick layer of sand (PG&E 1993). The inside sloping surface of the berms surrounding each pond was spray-coated with asphalt

to prevent erosion. Each pond had a total depth of about 6 feet. When in use, a 1-foot freeboard was maintained as per waiver from the Water Board, Colorado River Region (Water Board 1975). Based on a 1-foot freeboard, the four ponds had a total capacity of nearly 5 million gallons. Each pond was equipped with a resistivity grid leak detection system. Wastewater was transferred from the facility to the ponds via pipeline. The pipeline was about 1,500 feet long and was constructed primarily of 3-inch-diameter PVC (Figure 4-1).

From October 1971, when Pond No. 1 was first placed in service, until August 1973, wastewater was only discharged to the pond when injection well PGE-08 was out of service. From August 1973 to December 1973, wastewater was discharged to SWMU 10 on an alternating 3-day cycle with Injection Well PGE-8. Beginning in December 1973, when PGE-08 was permanently removed from service, wastewater from the compressor station was continuously discharged into the ponds and allowed to evaporate. Wastewater discharged to the ponds consisted primarily of treated cooling tower blowdown (about 95 percent) and a minor volume of effluent from the OWS (about 5 percent) (PG&E 1993). A maximum of roughly 30,000 gpd of wastewater were discharged to the old evaporation ponds; the average daily rate between 1975 and 1980 ranged from 8,000 to 17,600 gpd (PG&E 1984a).

The ponds became inactive as RCRA-regulated units in October 1985 (Kearny 1987); however, the four ponds remained in use for the disposal of non-hazardous wastewater until they were replaced with four new Class II (i.e., double-lined) ponds in October 1989.

Wastewater disposed of in the ponds between 1971 and 1985 contained Cr(T) at concentrations ranging from 0.49 to 1.6 mg/L and Cr(VI) at concentrations ranging from <0.1 to 0.75 mg/L (Brown and Caldwell 1985a). Solids that accumulated within the ponds contained Cr(T) and Cr(VI) concentrations ranging from 18 to 1,000 mg/kg and <1.0 to 6.2 mg/kg, respectively (Brown and Caldwell 1985b). Other metals, primarily copper, nickel, and zinc, were also present in the solids. Laboratory data sheets for this unit are provided in Appendix C.

The ponds were removed from service in October 1989. The ponds were physically removed and closed in 1993, during Phase 3 of the hazardous waste treatment system closure (Trident 1993). In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995). Additional details regarding the closure of this unit are presented in Section 5.0.

4.1.9.2 Constituents of Potential Concern

The evaporation ponds were clean closed by PG&E in 1993, and a closure certification acceptance letter for this unit was issued by DTSC in 1995. At the time of closure, no evaluation of organic constituents potentially present in the wastewater was conducted. However, there is no reason to suspect that any organic constituents would have migrated through the liner, as the liner was intact and in good condition when it was removed (Mittelhauser 1990a). Furthermore, any leaks would have been detected by the leak detection system. Therefore, there are no current COPCs for this unit.

4.1.10 Unit 4.3 – Oil/Water Holding Tank

The oil/water holding tank was identified by the USEPA in the RFA (Kearny 1987), but not subsequently designated as a SWMU or AOC by DTSC. The oil/water holding tank was part of the original oily water treatment system that operated until 1989 (Section 3.1.4.2). The oil/water holding tank was formerly located within the facility fenceline in the southern portion of the lower yard (Figures 4-1 and 4-2).

4.1.10.1 Description and History

The oil/water holding tank is believed to have been installed in 1951.¹⁷ It consisted of a cylindrical steel tank about 15 feet long and 5 feet in diameter. The tank had a capacity of 3,000 gallons. The tank was mounted horizontally on two concrete supports; the area beneath the tank was unpaved.

The oil/water holding tank was used to collect oily water from the compressor floor drainage (about 200,000 gallons per year), compressor engine cleaning operations (about 10,000 gallons per year), and steam cleaning operations (about 10,000 gallons per year) (Kearny 1987). In general, all oily water discharged to the oily water system, as is the case today (Russell 2006b). Wastewater that was collected in this tank was discharged by gravity flow via an aboveground 3-inch diameter steel pipe to the adjacent OWS (Unit 4.4).

Chemical analysis data for wastewater processed through the oil/water holding tank indicate that the wastewater contained 48 mg/L oil and grease (Brown and Caldwell 1986). Detectable concentrations of some metals, including Cr(T), were also present in the wastewater. No indication of a release was observed during a facility inspection performed as part of the RFA (Kearny 1987).

The oil/water holding tank was removed in conjunction with the sludge drying beds (SWMU 5) between November 1988 and February 1989 (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. Additional details regarding the closure of this unit are presented in Section 5.0.

4.1.10.2 Constituents of Potential Concern

The oil/water holding tank was closed and removed between November 1989 and March 1990 (Mittelhauser 1990b). No sampling has been conducted for this unit. The pipeline for the oil/water system exhibited the highest-residual TPH results (1,200 mg/kg). Only TPH in the heavier-than-diesel range was detected; TPH-d and TPH-g were not detected. Based on the historical operations, PG&E has identified Cr(T), copper, nickel, lead, zinc, Cr(VI), TPH, and PAHs as COPCs for this unit. DTSC also identified other Title 22 metals, VOCs, all other SVOCs (in addition to PAHs), and pH as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.1.11 Unit 4.4 – Oil/Water Separator

The former OWS (it has since been replaced with a new system) was identified by the USEPA in the RFA (Kearny 1987), but not subsequently designated as a SWMU or AOC by

¹⁷ The RFA (Kearny, 1987) indicates that the oil/water holding tank in place at the time of the RFI was installed in 1970. It is unknown whether the RFA information is incorrect, whether another oil/water holding tank was in place prior to 1970, or whether prior to 1970, oily water flowed directly to the oil/water separator.

DTSC. The former OWS was part of the original oily water treatment system that operated until 1989 and was located adjacent to the oil/water holding tank (Unit 4.3) within the facility fenceline in the southern portion of the lower yard (Figures 4-1 and 4-2).

4.1.11.1 Description and History

The former OWS was approximately 4.5 feet deep, 15 feet long, and 6 feet wide, and it was constructed of 6-inch thick concrete (Kearny 1987). The unit reportedly received oily water from the oil/water holding tank (Kearny 1987). The unit was equipped with an underflow weir to control discharges and a suction pump on the effluent end to collect and remove floating oil. The floating oil was transferred by flexible hose to a portable waste oil storage tank (Unit 4.5). Prior to 1964, treated water from the OWS was directed to the transfer sump prior to discharge to Bat Cave Wash. From 1964 to 1969, effluent from the OWS may have been directed to a treatment pond and processed along with the cooling water blowdown through the single-step chromium treatment system prior to discharge. From 1969 through October 1985, effluent from the OWS was routed to the chromate reduction tank and was processed along with the cooling water blowdown through the two-step chromium treatment system prior to being discharged. In November 1985, the chromate reduction tank was converted into a holding tank (Kearny 1987), and the discharge from the OWS was routed to either the holding tank or the transfer sump prior to discharge.

Chemical analysis data for wastewater processed through the OWS indicate that the wastewater contained 60 mg/L oil and grease (Brown and Caldwell 1986). Detectable concentrations of some metals including Cr(T), copper, and zinc were also present in the wastewater. No indication of a release was observed during a facility inspection performed as part of the RFA (Kearny 1987).

This OWS was closed and removed between November 1989 and March 1990 (Mittelhauser, 1990b). Laboratory data sheets are provided for this unit in Appendix C. Additional details regarding the closure of this unit are presented in Section 5.0.

4.1.11.2 Constituents of Potential Concern

At the time of closure, only limited TPH analysis was conducted. Soil samples from beneath the OWS were analyzed only for TPH quantified as diesel. Limited soil removal was conducted, and residual concentrations ranged from ND to 18 mg/kg. However, TPH concentrations in the heavier-than-diesel range were not evaluated. Based on the historical operations, PG&E identified TPH, Cr(VI), wear metals (Cr[T], copper, lead, nickel, and zinc), and PAHs as the COPCs for this unit. DTSC also identified all other Title 22 metals, VOCs, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b, 2007f). COPCs are anticipated to be limited to soil only.

4.1.12 Unit 4.5 – Portable Waste Oil Storage Tank

The portable waste oil storage tank was identified by the USEPA in the RFA (Kearny 1987), but not subsequently designated as a SWMU or AOC by DTSC. The portable waste oil storage tank was located within the facility fenceline in the southern portion of the lower yard adjacent to the OWS (Unit 4.4), as depicted in Figures 4-1 and 4-2.

4.1.12.1 Description and History

The portable waste oil storage tanks consisted of an enclosed steel tank about 6 feet long and 2 feet in diameter mounted horizontally on a trailer (Kearny 1987). The tank was connected to a suction pump within the OWS with a flexible hose. The portable tank was stationed on a concrete pad that was bermed on three sides with a 6-inch high curb. The fourth side of the pad was left open to allow removal of the unit.

The tank was used to collect floating oil from the OWS. When the tank was full, it was transported to the east side of the facility and placed next to the stationary waste oil storage tank (Unit 4.6). Oil within the portable tank was then transferred to the stationary tank. Starting in 1975, oil within the stationary tank was periodically removed and initially sold for reuse and later transported offsite for recycling (PG&E 1980a; Riddle 2004).

The portable waste oil storage tank was removed from service in 1989. During the removal of the transfer sump (SWMU 9) and the OWS (Unit 4.4), the portable tank was used to temporarily hold waste oil removed from the sump and OWS. The waste oil was subsequently removed from the portable tank, and the tank was then transported offsite to Chemical Transportation in Wilmington (Mittelhauser 1990a). Laboratory data sheets are provided for this unit in Appendix C. No indication of a release associated with the portable waste oil storage tank was observed during a facility inspection performed as part of the RFA (Kearny 1987).

4.1.12.2 Constituents of Potential Concern

The portable waste oil storage tank was closed and removed between November 1989 and March 1990 (Mittelhauser 1990b). At the time of closure, no evaluation of organic constituents was performed. COPCs potentially associated with incidental releases from the portable waste oil storage tank include TPH and PAHs. DTSC also identified VOCs as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil.

4.1.13 Unit 4.6 – Waste Oil Storage Tank

The waste oil storage tank was identified by the USEPA in the RFA (Kearny 1987), but not subsequently designated as a SWMU or AOC by DTSC. The waste oil storage tank is located within the facility fenceline in the eastern portion of the facility within the oil and fuel storage area (Figure 4-1).

4.1.13.1 Description and History

This tank was installed during the construction of the facility in 1951. The tank is an enclosed vertical steel tank that is about 20 feet high and 8 feet in diameter, and has a capacity of 7,500 gallons. The tank is located within the oil and fuel storage area, which is equipped with secondary containment consisting of a concrete paved area about 20 feet wide and 100 feet long that is surrounded by a 2-foot-high concrete curb.

The waste oil storage tank is still in active service. Waste oil generated at the compressor station is accumulated in this tank for temporary storage. The contents of the tank are periodically removed and transported offsite for recycling (PG&E 1980a; Riddle 2004).

4.1.13.2 Constituents of Potential Concern

The waste oil storage tank is still in active service, and there have been no known releases from this tank. Therefore, there are no COPCs for this unit.

4.1.14 AOC 1 – Area Around Percolation Bed

AOC 1 consists of the area that surrounds SWMU 1, the former percolation bed. AOC 1 is located outside the facility fenceline west of the compressor station within Bat Cave Wash (Figure 4-1).

4.1.14.1 Description and History

The areal extent of AOC 1 has not been formally defined; however, by definition it is considered to consist of the floor of Bat Cave Wash in the area surrounding the location of the discharge area (SWMU 1). It also includes the floor of Bat Cave Wash from the discharge area to the railroad tracks (none of historic aerial photographs indicates that the flow of wastewater in the wash extended beyond the railroad tracks). Portions of AOC 1 are located on PG&E property and portions are located on property owned by the HNWR.

4.1.14.2 Constituents of Potential Concern

COPCs for soil associated with AOC 1 are the same as for SWMU 1, and consist of Cr(T), Cr(VI), copper, lead, mercury, nickel, zinc, pH, TPH and PAHs. The COPCs for groundwater are Cr(T), Cr(VI), copper, lead, nickel, zinc, electrical conductivity, pH, and TPH. For AOC 1, DTSC also recommended further evaluation of the Title 22 metals and VOCs (if VOCs are present in soil at SWMU 1) and other organic COPC analyses (TPH and SVOCs, including PAHs) if elevated concentrations are detected at SWMU 1.

4.1.15 AOC 2 – Area Around Inactive Injection Well (PGE-08)

AOC 2 consists of the unpaved soil area around inactive injection well PGE-08 (SWMU 2). AOC 2 is located within the facility fenceline on the west side of the lower yard (Figure 4-1).

4.1.15.1 Description and History

The areal limits of AOC 2 have not been formally defined. However, AOC 2 is considered to consist of the unpaved surficial area in the immediate vicinity of the well, and the interconnecting piping. The area in the immediate vicinity of injection well PGE-08 is unpaved.

Injection well PGE-08 was used from May 1970 through December 1973 for the subsurface injection of treated wastewater from facility operations. Based on the construction of the well, injection of wastewater occurred in fractured bedrock at depths in excess of 405 feet bgs. Because wastewater was injected into bedrock at depth, releases to surface and subsurface soil are unlikely. The wastewater piping will be addressed as part of AOC 18. Additionally, there is no evidence of any surface releases to the area surrounding the former injection well. Laboratory data sheets for this unit are provided in Appendix C. Further assessment and delineation of this unit is not required.

4.1.15.2 Constituents of Potential Concern

AOC 2 consists only of the unpaved surficial area surrounding inactive injection well PGE-08 (SWMU 2). No constituents of concern have been detected in surficial areas around SWMU; therefore, are no COPCs for soil or groundwater for AOC 2.

4.1.16 AOC 3 – Area Around PG&E Inactive Wells #6 & #7 (PGE-06 and PGE-07)

4.1.16.1 Description and History

The areal limits of AOC 3 have not been formally defined. However, AOC 3 is considered to consist of the area in the immediate vicinity of the two wells. The area in the immediate vicinity of both wells is unpaved.

Wells PGE-06 and PGE-07 were constructed as standby water production wells. There is no evidence to indicate that any wastes were disposed of into or around these wells.

4.1.16.2 Constituents of Potential Concern

Wells PGE-06 and PGE-07 are standby water production wells, and there is no evidence to indicate that any wastes were disposed of into or around these wells. Therefore, there are no COPCs for AOC 3.

4.2 AOCs Identified by DTSC Subsequent to the CACA

Additional AOCs were identified by DTSC in 2001 (DTSC 2001) and 2006 (DTSC 2006a). AOCs 4 through 13 were identified subsequent to the 2000 Ecology and Environment soil investigation work plan. AOCs 15 through 19 were formally designated by DTSC in 2006, and were identified as the result of additional site history review and site reconnaissance. AOC 20 was added as a result of a request by DTSC in its May 9, 2007 (DTSC 2007d) comment letter on the Final RFI/RI Volume 1.

4.2.1 AOC 4 – Debris Ravine

The Debris Ravine is located on PG&E property south of the compressor station, outside the facility fenceline (Figure 4-1).

4.2.1.1 Description and History

The Debris Ravine is a narrow, steep-sided arroyo that drains into Bat Cave Wash at the southwest corner of the facility. The bottom of the ravine mainly consists of bedrock, with a thin veneer (i.e., less than 1 foot) of sediments and debris. The southern portion of the lower yard just above the ravine has historically been used to store and/or dispose of scrap and debris.

Historical operations in this area are not documented; however, over the years some scrap and debris have ended up at the bottom of the ravine. Materials identified in the ravine include wood, metal (e.g., cans, machine parts, rebar, etc.), concrete, apparent transite siding, and small quantities of white powder. A former employee reported disposing of 200 to 300 bags of lime in this area after the old lime softening process was discontinued (Russell 2006b). Other employees have reported that domestic garbage has been disposed of at the

Debris Ravine (Russell 2006b), and glass, wood, and a partially melted graduated cylinder have been identified on the slope of the Debris Ravine, east of the scrap storage area.

4.2.1.2 Constituents of Potential Concern

A variety of solid waste has been discarded in the Debris Ravine. Based on these observations and analysis of prior samples, PG&E has identified Cr(VI), Title 22 metals, PAHs, and asbestos as the COPCs in soil. DTSC also identified VOCs, TPH, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b). Based on the types of materials in the ravine (solids) and depth to groundwater in the area, COPCs are anticipated to be limited to soil only.

4.2.2 AOC 5 –Cooling Tower A

For the purposes of the RFI, AOC 5 includes the entire area surrounding original Cooling Tower A as shown in Figure 4-1. The new Cooling Tower A is in the same location as the original Cooling Tower A. AOC 5 is located within the facility fenceline.

4.2.2.1 Description and History

AOC 5 encompasses the cooling tower, the site of the former chemical shed, the site of the sulfuric acid tank, and the site of the current cooling water treatment product tanks. A portion of AOC 5 is unpaved (covered with gravel), but it is bounded on all sides by pavement.

Operations in this area consist of the storage, handling, and use of cooling water additives. From 1951 to 1985, chromium-based corrosion inhibitors were used to treat the cooling water. From 1985 to the present time, non-hazardous, phosphate-based inhibitors, scale control agents, and biocides have been used. Sulfuric acid has been used from 1951 to the present time to control the pH of the cooling water. The major features located in this AOC are discussed below.

Original Cooling Tower A. The original Cooling Tower A was a coil shed tower constructed along with the rest of the compressor station in 1951. The original tower was replaced with a new tower in 2001. The cooling tower is used to cool compressed natural gas and lubricating oil cooling water. Limited soil sampling conducted in the unpaved areas in the vicinity of the cooling tower indicated that Cr(T), Cr(VI), zinc and copper are present at concentrations exceeding the expected background. One of the four samples contained Cr(T) at a concentration above the industrial PRG.

Former Chemical Shed. The former chemical shed was located about 15 feet east of Cooling Tower A. The shed was used to store chromium-based cooling water additives used in the cooling tower from 1951 to 1985. The shed was demolished in the summer of 2000 as part of the construction involved in replacing Cooling Tower A. Stained soils beneath the former chemical storage shed were observed after its demolition (PG&E 2000a). The stained soils were reportedly limited to a small area about 4 feet by 4 feet square. The stained soils were excavated by the construction crew and removed offsite. Confirmation soil samples were not collected. However, this area is recommended for further sampling as part of AOC 5. After removal, the area was backfilled with clean fill. As part of the new cooling tower

construction, a reinforced concrete pad was built adjacent to the removal area and a small portion of the area is covered with this pad.

Sulfuric Acid Tank. Sulfuric acid is used at this site to control the pH of the cooling water in Cooling Tower A. The original tank was an unlined steel AST with a capacity of 2,600 gallons. The tank was located within a concrete secondary containment area. In 1984, the original tank was replaced with a new epoxy-lined AST of the same size and capacity (PG&E 1984a).

Chemical Storage Tanks. There are currently three ASTs located at the southern end of the cooling tower that are used for the storage of phosphate-based cooling water treatment products (Table 3-3). The tanks are constructed of polyethylene and have secondary containment.

4.2.2.2 Constituents of Potential Concern

Only chemical products related to the cooling water treatment have been stored within AOC 5, including the chromate- and phosphate-based inhibitors, and sulfuric acid. Therefore, COPCs for AOC 5 consist of Cr(T), Cr(VI), copper, lead, nickel, zinc, and soil pH. In addition, DTSC identified other Title 22 metals as COPCs (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.3 AOC 6 –Cooling Tower B

For the purposes of the RFI, AOC 6 includes the entire area surrounding original Cooling Tower B as shown in Figure 4-1. The new Cooling Tower B is in the same location as the original Cooling Tower B. AOC 6 is located within the facility fenceline.

4.2.3.1 Description and History

The area encompasses the cooling tower, the site of the former chemical shed, the site of the sulfuric acid tank, and the site of the current cooling water treatment product tanks. AOC 6 is partially unpaved (covered with gravel), but is bounded on all sides by pavement. A former employee stated that he had observed cooling water from Cooling Tower B overflowing and discharging into the Northeast Ravine (Russell 2006b).

Operations in this area consist of the storage, handling, and use of cooling water additives. Operations in this area began in 1954 with the construction of a two-cell cooling tower. From 1954 to 1985, chromium-based corrosion inhibitors were used to treat the cooling water. From 1985 to the present time, non-hazardous, phosphate-based inhibitors, scale control agents, and biocides have been used. Sulfuric acid has been used from 1954 to the present time to control the pH of the cooling water. The major features located in this AOC are discussed below.

Cooling Tower B. The original Cooling Tower B was a coil shed tower constructed as a two-cell unit in 1954 to support the expansion of the compressor station. Cooling Tower B was subsequently expanded to a four-cell tower in 1958. The original tower was replaced with a new tower in 2002. The cooling tower is used to cool compressed natural gas and lubricating oil cooling water.

Former Chemical Shed. The former chemical shed was located about 15 feet east of Cooling Tower B. The shed was used to store the chromium-based cooling water additives used in the cooling tower from 1954 to 1985. The shed was demolished in the winter of 2001 in conjunction with the installation of the new cooling tower. Stained soil was observed beneath the shed following its removal. Limited soil sampling indicated that Cr(T), Cr(VI), copper and zinc were present at concentrations exceeding the expected background. Two samples contained Cr(T) above the industrial PRG. The stained soil was removed, generating five drums of material that were shipped offsite for disposal. The excavation was backfilled with clean soil.

Sulfuric Acid Tank. Sulfuric acid has been used at this site to control the pH of the cooling water in Cooling Tower B. The original tank was an unlined steel AST with a capacity of 2,600 gallons. The tank was located within a concrete secondary containment area. In 1984, the original tank was replaced with a new epoxy-lined AST of the same size and capacity (PG&E 1984a).

Chemical Storage Tanks. There are currently three ASTs located just east of the cooling tower that are used for the storage of phosphate-based cooling water treatment products (Table 3-3). The tanks are constructed of polyethylene and have secondary containment.

4.2.3.2 Constituents of Potential Concern

Only chemical products related to the cooling water treatment have been stored within AOC 6, including the chromate- and phosphate-based inhibitors, and sulfuric acid. Therefore, COPCs for AOC 6 consist of Cr(T), Cr(VI), copper, lead, nickel, zinc, and soil pH. DTSC also identified other Title 22 metals as COPCs (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.4 AOC 7 – Hazardous Material Storage Area

A hazardous materials storage building and loading dock is located in the southeastern portion of the facility, inside the facility fenceline (Figure 4-1).

4.2.4.1 Description and History

This facility is concrete-lined and is equipped with secondary containment walls. The area currently serves as the storage area for hazardous wastes generated at the facility (e.g., oily rags, used oil filters, etc.). This area has been used for the collection and storage of hazardous materials since at least the early to mid 1980s (Riddle 2004). The area is also used to store chemical products used at the compressor station (e.g., lubricants, parts cleaning compounds, and small quantities of solvents). This area has apparently always been used for chemical storage (Riddle 2004), though the types of chemicals stored there is unknown. A roof was installed over the storage area during in the 1960s (Russell 2006a). Review of aerial photographs suggests that this area was unpaved until at least the mid-1950s.

4.2.4.2 Constituents of Potential Concern

A more general characterization of this AOC is appropriate because of its use as the hazardous material accumulation area for the facility. This area is also used to store chemicals used in routine maintenance such as lubricants and parts cleaning compounds, including small quantities of solvents. Hazardous wastes such as oily rags, air filters, oil

filters, contaminated “dry sweep” (oil absorbent), small quantities of paint, and spent aerosol cans of solvent are generated as part of equipment and facility maintenance. Based on interviews with station personnel, weed and insect control is conducted by a contractor, so these materials are not stored onsite. Based on the types of chemical products and wastes stored in this area, COPCs in soil associated with AOC 7 consist of VOCs, SVOCs including PAHs, PCBs, TPH, and Title 22 metals. DTSC also identified Cr(VI) and pH as COPCs (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.5 AOC 8 - Paint Locker

A small locker used for the storage of paint is located within the facility fenceline in the southeastern portion of the facility (Figure 4-1).

4.2.5.1 Description and History

The paint locker measures about 5 feet wide by 5 feet long, and is constructed of steel. The locker has tight-fitting doors and was designed for the fire-safe storage of flammable materials. Large-scale painting activities at the compressor station are handled by outside crews (Riddle 2004). Therefore, only small quantities of paint and thinners used for minor touch-up work are stored in this shed. Paint is stored in both spray cans and in 1- to 5-gallon cans. Non-chlorinated paint thinners are also stored in 1-gallon cans. About 100 gallons of paint and thinners are routinely stored in this shed. No evidence of any release is present in or around the shed.

4.2.5.2 Constituents of Potential Concern

It is likely that paints contained within the locker have consisted of oil-based, and water-based paints. Thinners are believed to have consisted of non-chlorinated thinners. During the use of these products, it is possible that small quantities of paint and/or thinners may have spilled in the vicinity of the paint locker. Based on this information, COPCs for soil associated with AOC 8 consist of VOCs, TPH, and some metals (e.g., lead from lead-based paint). COPCs are anticipated to be limited to soil only.

4.2.6 AOC 9 – Southeast Fence Line (Outside Visitor Parking Lot)

AOC 9 is located in the southeast portion of the facility, just south of the visitor parking lot and immediately east of (outside) the facility fence line (Figure 4-1). It is also located in the vicinity of the leachfield and septic tank associated with the Auxiliary Building.

4.2.6.1 Description and History

In the spring of 2000, PG&E informed the DTSC that a worker at the compressor station had encountered a small amount of discolored surface soil just outside the fence line on the southeast side of the facility (PG&E 2000b). The discolored soil was located on an extremely steep slope. It was uncovered by erosion, which caused a storm drain pipe to break off near the top of the ravine. The pipe was replaced, the pipe was extended into the East Ravine, and the end was covered with gravel.

The storm drain is believed to be connected to a trench that could have received runoff from leaks originating from the AJCW pumps (AOC 15). Two employees indicated that leaks from the AJCW entered a pipe trench in the road near the AJCW system in the past (Russell

2006b). The trench system leading to the storm drain at AOC 9 and/or another nearby storm drain may also have captured a portion of the steam cleaning (washrack) runoff before the washrack area was bermed (Russell 2006b). AOC 9 is also located in the vicinity of the leachfield and septic tank associated with the laboratory. Review of aerial photographs indicates that this area was formerly unpaved.

About 1.5 cubic yards of the stained soil was removed and shipped offsite for disposal. Site conditions (the steepness of the terrain) limited the feasible extent of excavation. Confirmation samples indicated that residual Cr(T) and Cr(VI) still remained in the soil; however, other metals and pH appear to be at background levels (PG&E 2000c).

4.2.6.2 Constituents of Potential Concern

The color of the soil and the results of samples collected from AOC 9, indicated that some chromium-containing material may have been released in this area. Based on these data, COPCs for AOC 9 consist of Cr(T) and Cr(VI). Because this AOC may have received runoff from the steam cleaning area, and leaks of non-hazardous molybdenum-containing cooling water, other COPC for soil associated with AOC 9 include TPH, PAHs, molybdenum, and wear metals (copper, lead, nickel, and zinc). DTSC identified Title 22 metals, VOCs, pH, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.7 AOC 10 – East Ravine

The East Ravine is a small ravine located on the southeast side of the compressor station (Figure 4-1). The ravine runs eastward towards the Colorado River. Portions of the East Ravine are on PG&E property outside the facility fenceline, and other portions of the ravine are located on property owned by the HNWR.

4.2.7.1 Description and History

The East Ravine is approximately 1,600 feet long and is bisected by three man-made impoundments (one constructed dam and two dirt roads). Due to the impoundments, flow from most of the length of this ravine (west of the lower dirt road) does not typically reach the Colorado River. The drainage for this ravine includes minor runoff from the access road to the facility, runoff from the mountains to the south, and some runoff from the compressor station. Several small erosion channels are visible in a 1955 aerial photograph (Figure 3-15), and plant personnel report having to repair erosion damage on the slopes on a regular basis (Russell 2006b). Runoff from the station access road may have included leakage from the Jacket Cooling Water pumps and/or hot well, as described in Section 4.2.12 (Russell 2006b).

The origin of the berms in the East Ravine is uncertain. Some former employees have said that the berms were constructed (or improved) by PG&E as part of backhoe practice, but other former employees have said that the berms were there before they started their employment with PG&E. The station employees said that they have heard that the berms were constructed as (1) a stock reservoir, (2) to protect Route 66, or (3) to protect the pipeline and associated roads (Russell 2006b). The berms were in place by 1964 (Russell 2006b).

The East Ravine contains three small drainage depressions that contain fine-grained sediments. The most upstream drainage depression, and the largest, is located behind an

earthen dam that was built across the ravine. This small dam stands approximately 9 feet above the fine-grained soils trapped behind it. Approximately 1 foot below the top of the dam is a culvert to allow water flow. This culvert is now collapsed, but erosion on the downhill side shows that water has flowed through this culvert in the past. Aerial photographs from 1964 and 1967 show what appears to be water ponded behind this dam. The construction date and purpose of this small dam are not known. Fine-grained sand and silt are more than 2 feet thick behind the dam.

The second and third drainage depressions are separated by a dirt road. This road has no culvert, and there is no evidence of erosion to suggest that water has flowed over the top of the road from one side to the other. Two test pits dug into the middle depression indicate that the fine-grained soils were less than 15 inches thick (E&E 2004). The easternmost dirt road serving as a barrier to water flow has a drainage culvert that exits near the top of the road; however, the upstream side of the culvert could not be found, and is likely buried. The nearest drainage depression would have to fill up before much water could flow through this culvert. East of the third impoundment, the East Ravine is linked to the Colorado River via a culvert under the pipeline access road adjacent to the river. If any water is discharged from the upstream portions of the East Ravine, it could discharge to the river via this culvert. A vegetated wetland area is present at the mouth of the East Ravine. About one-half of the length of the ravine is on PG&E property.

Three subareas (10b, 10c and 10d) have been identified within the East Ravine where water and sediment collects within low areas or behind impoundments. In the upstream drainage depression (10b), behind the dam, there is a thin (less than 1 inch thick) greenish gray layer. In the middle drainage depression (10c), a layer of white fine-grained material, less than 2 inches thick and similar in appearance to the white material in Bat Cave Wash and at the Railroad Debris site, was found at a depth of less than 1 foot. This white material was just on top of, or within a few inches of, underlying coarser material. The third area, 10d, is the easternmost impoundment, formed by the construction of an access road.

During a recent site visit, a small area of stained soil (10a) (possibly hydrocarbon staining) was noted at the discharge of a storm drain leading from the southeastern portion of the compressor station. This storm drain may have captured some runoff from the steam cleaning area before the steam cleaning area was fully bermed (Russell 2006b). The storm drain discharges into the East Ravine upstream of the previously-identified subareas.

The natural runoff from the southeastern portion of the facility eventually flows to the East Ravine. This area was unpaved during the early years of station operation, and only partially paved by the mid-1960s. In addition, during larger rain events, runoff from the station access road could also enter the East Ravine from the station road. Until early 2006, only the southernmost portion of the station access road adjacent to the East Ravine was bermed (Russell 2006b).

4.2.7.2 Constituents of Potential Concern

The natural runoff from the eastern portion of the facility eventually flows to the East Ravine. The runoff may contain dissolved and suspended materials that may have been incidentally released at the facility. The runoff accumulates in low-lying areas in the ravine where the suspended and dissolved constituents would tend to concentrate and deposit on

the surface soils. Volatile constituents would not be expected to remain in the runoff as it flows down the ravine; however, less volatile constituents may have been transported to, and deposited in, the low-lying areas. Based on this information, PG&E identified PAHs, TPH, Cr(T), Cr(VI), molybdenum, copper, lead, nickel, and zinc as COPCs for soil in AOC 10. DTSC identified Title 22 metals, VOCs, all other SVOCs (in addition to PAHs), and pH as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.8 AOC 11 – Topographic Low Areas

The five topographic low areas that comprise AOC 11 are depicted in Figure 4-1. These areas were identified based on aerial photographs, a site reconnaissance performed by Ecology and Environment (2000b), and a recent site reconnaissance. Some portions of AOC 11 are on PG&E property outside the facility fenceline and some portions of AOC 11 are located on property owned by the HNWR.

4.2.8.1 Description and History

The principal drainage pathways leading away from the compressor station have been identified (E&E 2000b). While historic drainage patterns have changed over the years as a result of road re-alignments, paving, and/or the installation of new culverts, in general, stormwater or other drainage from the facility flows overland, or via drainage collection facilities, to reach small ravines surrounding the station. These small ravines feed into defined channels, such as the Debris Ravine, that in turn drain into larger washes, such as the Bat Cave Wash. However, certain channels drain into topographic low points or depressions. Runoff collects at these low points and infiltrates or evaporates rather than draining away. Based on a recent site visit, there are at least three apparent stormdrain outlets that discharge to AOC-11. It is not known whether all of these stormdrains are currently active. A former employee reported that he observed a release from Cooling Tower B that entered the ravine containing AOC 11 (the Northeast Ravine) (Russell 2006b). Stormwater runoff from the northeastern portion of the station, and from the area containing the Transwestern Intertie would also have flowed to AOC 11. In addition a stormwater pipe that captures water run-off from I-40 also discharges to AOC 11.

AOC 11 consists of five topographic low areas to the northeast of the compressor station (in the Northeast Ravine). Low areas 11a, 11b, 11c, and 11d are located on HNWR property, and 11e is located on PG&E property. Three of these low areas were previously identified by E&E and were labeled as L4a (11a), L4b (11b), and L5 (11d). Low areas 11c and 11e were identified during the May 2006 site reconnaissance. E&E had identified one additional low area (L6) as part of AOC 11. L6 was located in Bat Cave Wash on the east side immediately north of the road leading into Bat Cave Wash. This area is fully contained within and has been incorporated into AOC 1.

Two newly-identified areas have been added to AOC-11. During a recent site visit, remnants of two former dams were identified in the Northeast Ravine. Small amounts of fine-grained soils appear to be present at the upper dam, and a larger volume of fine grained soil is present behind the lower dam. These dams may have been constructed to protect the gas pipelines and the old station access road from flooding (Russell 2006b). These two newly-identified areas are designated 11c and 11e. Because these areas represent topographic low spots, drainage from the facility may accumulate in these areas.

The original plant access road ran through the area now identified as 11a. A stormwater pipe that captures runoff from I-40 and Park Moabi Road discharges into AOC 11 north of 11a, immediately south of the I-40 overcrossing. Stormwater runoff from I-40 could have resulted in the release of TPH, PAHs, lead, and wear metals (including barium, chromium, copper, nickel, and zinc) into AOC 11, and specifically 11a., that are not due to PG&E's operations at the Topock Compressor Station. During storm events, water pools in subarea 11a. Substantial flow has been noted from the I-40 stormwater pipe.

As originally described, AOC 11 also included definable drainage channels or ravines immediately downstream of potential source areas at the compressor station and the soils at drainage pipe outlets (areas R1 to R20). Because these areas represent topographic low spots, drainage from the facility may accumulate in these areas. However, discharge from these areas would have migrated to the low areas within each ravine or wash, and would have commingled with other potential discharges to these ravines and/or washes. Consequently, potential releases from these stormdrains are addressed as part of the SWMUs and AOCs that would have received the flow from the stormdrains. The COPCs associated with potential stormwater discharges are addressed in SWMU 1, AOC 1, AOC 4, AOC 10 and AOC 11.

4.2.8.2 Constituents of Potential Concern

The topographical low areas act as concentration and deposition sites for constituents entrained in runoff from the compressor station and surrounding areas. It is possible that materials used at the compressor station may have been carried outside the fenceline by runoff. Volatile constituents would not be expected to remain in the runoff as it flows down the ravine; however, less volatile constituents may have been transported to, and deposited in, the low-lying areas. Based on this information, PG&E has identified PAHs, TPH, and metals, including Cr(T), Cr(VI), copper, lead, nickel, and zinc, as COPCs for soil associated with AOC 11. DTSC identified Title 22 metals, VOCs, all other SVOCs (in addition to PAHs), and pH as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.9 AOC 12 – Fill Area

The potential fill areas that comprise AOC 12 are depicted in Figure 4-1. AOC 12 was identified based on aerial photographs, a site reconnaissance performed by Ecology and Environment (2000b), and information provided by former employees. Originally, only location 12a (formerly referred to as location F2) was identified as a potential fill location; locations 12b and 12c were identified based on additional historical information provided by former employees.

4.2.9.1 Description and History

The area containing AOC 12 was formerly a hill bisected by ravines (Figure 3-14). The original plant access road ran to the east of the hill. Former employees indicated that this area was used for backhoe practice (Russell 2006b). Review of aerial photographs suggests that by 1967 a portion of this area had been leveled. It is possible that during backhoe practice and or grading and leveling of the area, other materials could have been buried in the low areas. E&E identified a fill area located on the bench north of the metering station

(area F2), on property owned by the HNWR. This area was identified based on employee interviews and the presence of small pieces of concrete debris on the slope.

Two potential fill locations were identified by interviewees (Russell 2006b). These two locations are adjacent to the northwestern and southwestern corners of the Transwestern Intertie Facility (Figure 4-1), and may be completely or partially located on PG&E property. According to one employee, several bags of asbestos and two leaking 55-gallon drums were buried near the northwest corner of the Transwestern Intertie. (Russell 2006b). Asbestos that may not have been bagged was reportedly buried in a small (6-foot deep) ravine near the southwestern corner of the Transwestern Intertie area. The elevation of the area at the time was reportedly several feet lower (Russell 2006b). The continuation of the small ravine is still visible. No excavation or sampling has been performed at any of these locations.

4.2.9.2 Constituents of Potential Concern

The 12a fill area appears to be a disposal area for construction-related debris; however, it is possible that other materials may have been disposed of in this area. While asbestos was reportedly disposed of at the other two locations within AOC 12, the exact nature of the materials placed into these areas is unknown. Therefore, COPCs for soil associated with AOC 12 include a broad range of possible contaminants including VOCs, PAHs, Title 22 metals, asbestos, and TPH; specific COPCs vary by subarea (see Table 4-2). DTSC also identified Cr(VI), pH, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.10 AOC 13 – Unpaved Areas Within the Compressor Station

AOC 13 consists of unpaved areas within the fence line of the compressor station. The unpaved areas are located in various strips and patches among buildings and structures on this active facility. The majority of the unpaved areas within the fence line that are not part of another SWMU, AOC, or other undesignated areas lie within the lower yard on the west side of the facility (Figure 4-1). E&E identified numerous subareas within AOC 13; however, given that stormwater runoff is likely to have traversed various areas, and that potential spills of cooling water could have occurred in various areas, AOC 13 will be addressed as one unit.

4.2.10.1 Description and History

AOC 13 consists of unpaved areas within the fence line of the compressor station. These areas could have incidentally been impacted as a result of facility activities. In addition, as discussed earlier, former employees have reported and existing documentation suggests that pipeline liquids and/or waste oil were sprayed on station roads for dust control (PG&E 1980a; Russell 2006b).

4.2.10.2 Constituents of Potential Concern

Chemical products may have been incidentally released to unpaved areas, or surface runoff may have carried materials from paved areas and infiltrated the soil in the unpaved areas. Incidental leaks and spills could also have infiltrated into the soil at unpaved areas. Based on this information, PG&E has identified PAHs, Cr(T), copper, lead, zinc, molybdenum, mercury, Cr (VI), TPH, and soil pH as COPCs for soil associated with AOC 13. Due to the

incidental nature of the potential releases, and the great depth to groundwater at the station itself, COPCs are anticipated to be limited to soil only. DTSC identified Title 22 metals, VOCs, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b).

4.2.11 AOC 14 – Railroad Debris Site

The Railroad Debris site is located on property owned by the HNWR about 1,000 feet north of the compressor station, and is currently bounded by the Burlington Northern and Santa Fe railroad tracks to the north, I-40 to the south, and Bat Cave Wash to the west. An old alignment of Route 66, which apparently provided the access from the station to the Railroad Debris site, forms the eastern boundary of the unit (Figure 4-1).

4.2.11.1 Description and History

The Railroad Debris site occupies roughly 1.5 acres and first appears in an aerial photograph dated 1947. In that photograph, a mound of soil apparently related to construction of the rail line is present on the site. In subsequent aerial photographs dated 1955, a white patch and other materials are present on this site. A dirt road that runs from the north end of the compressor station to this area is also visible on the 1955 aerial photographs. Although the source of the white patch is unknown, similar material can be seen on aerial photographs from the same time period (mid 1950s) on the ground adjacent to the Sludge Drying Beds (SWMU 5). The white material is probably dehydrated lime sludge from the Permutit water conditioning system. As discussed earlier, former employees report that the lime sludge was trucked to this site and sprayed on the ground (Russell 2006b). The site currently contains miscellaneous construction debris including chunks of asphalt, railroad ties, and piping. Asbestos-containing material has also been identified at this site. Historical operations at this site and the source of this debris are unknown.

Employee reports suggest that a removal action for white powdery material was conducted in the early 1990s; however, no documentation regarding the removal has been found (Russell 2006b). The contours of the site suggest that some excavation may have occurred. Some white powdery material remains in the embankment adjacent to I-40, and it appears that a thin lens of additional material has been uncovered by erosion on the northern portion of the site. A roughly 1-foot thick layer of residual material is present immediately adjacent to I-40 and a thin lens of the same material is visible to the north of the excavation area. In addition, a 1998 investigation of the area indicated that a layer of white powdery material is present below the current soil surface (PG&E 1999b).

An asbestos removal action was completed at this site in 1999 (PG&E 1999c). In November 1998 during soil sampling at AOC 14, a small amount of friable construction debris and transite were found. The friable material contained over 1 percent asbestos. The transite was non-friable and after sampling, the trench was covered with clean fill material. PG&E removed the friable ACM on April 14, 1999 and disposed of the material at an appropriate landfill. Two shallow confirmation samples were collected of the underlying soils. At one sample location, asbestos was detected in the underlying soil. Additional sampling was implemented to characterize the extent of the asbestos in the soil underlying the loose construction material near this sample. On June 1, 1999, 14 additional samples were taken and no asbestos was detected in any of the sample locations.

4.2.11.2 Constituents of Potential Concern

The Railroad Debris site contains construction debris and likely dehydrated lime sludge from the Permutit water conditioning system, as well as possibly other materials. During trenching operations at the Railroad Debris site (Phase 1 of the RFI), asphalt material, creosote-treated railroad ties, construction debris, ACM, and a white powdery material were encountered at this site. Based on the foregoing observations and laboratory data analysis, PG&E has identified SVOCs (including pentachlorophenol and PAHs), Title 22 metals, Cr(VI), TPH, and asbestos as COPCs for this site. DTSC also identified VOCs as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.12 AOC 15 – Auxiliary Jacket Cooling Water Pumps

The AJCW pumps are part of the AJCW system and are located within the facility fenceline north of the auxiliary building (Figure 4-1).

4.2.12.1 Description and History

The AJCW system is a closed-loop cooling water system for the generator engines. The pumps are used to circulate the cooling water through the system. The AJCW system was subject to occasional leaks due to failure of pump and valve seals. Two employees indicated that in the past leaks from the AJCW entered a pipe trench in the road near the AJCW system (Russell 2006b). The trench led to a storm drain that discharged in the area of AOC 9.

The ground surface in the immediate vicinity of the pumps is unpaved, but covered with gravel; the area outside the containment berm is paved. There is currently no exposed soil in this area; however, the area immediately adjacent to the AJCW system was historically unpaved. Aerial photos from 1967 and earlier clearly indicate that the area was unpaved. Intervening aerial photographs do not provide sufficient resolution to determine when the area was first paved. Chromium-based cooling water additives were used in this system from 1951 through 1985. In 1985, this system was converted to using non-hazardous, molybdate-based cooling water additives. Incidental leaks and spills have occurred and may have resulted in impacts to the soil beneath the pumps. Historic information indicates that concentrations of molybdenum as molybdate (MoO_4) typically ranged from 300 to 800 ppm (Betz 1987, 1989, 1990, 1991).

4.2.12.2 Constituents of Potential Concern

Based on the historic use of chromium-based cooling water additives in this system, PG&E has identified Cr(T), Cr(VI), copper, lead, molybdenum, nickel, zinc, and pH as COPCs for soil. In addition, DTSC identified other Title 22 metals as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.13 AOC 16 – Sandblast Shelter

The sandblast shelter is located near the injection well PGE-08. The area is and has historically been unpaved.

4.2.13.1 Description and History

The sandblast shelter was apparently used to prepare metal at the facility for protective coating. Most of the sand blasting conducted at Topock apparently consisted of removing paint from plant equipment. No other information is available regarding this site.

4.2.13.2 Constituents of Potential Concern

No sampling has been done directly for this AOC. However, a soil sample (AOC 2A) collected for SWMU 2/ AOC 2 (an area close to the sandblast shelter) showed elevated concentration of zinc compared to background levels. COPCs for soil associated with AOC 16 are Title 22 metals. COPCs are anticipated to be limited to soil only. DTSC had no additional COPCs (DTSC 2006b).

4.2.14 AOC 17 – Onsite Septic System

AOC 17 consists of the onsite septic system connected to the Auxiliary Building. This septic system received wastes from the facility laboratory.

4.2.14.1 Description and History

The plant cooling water was routinely sampled to monitor its chemical content and pH. Test chemicals consisted of indicator reagents, which were supplied by the cooling water treatment chemical company. Once the cooling water was tested, the laboratory waste (testing solutions and small amounts of cooling water) was discharged into the septic system. Approximately 1 pint per day of test chemicals was disposed of into the septic system connected to the facility laboratory.

The same septic system also serves the remainder of the Auxiliary Building and other nearby buildings (the Technical Maintenance Building, Weld Shop, Garage, and Maintenance Shop). The Auxiliary Building includes the electric generators (P-Units), air compressors, electric switchgear, battery room, laboratory, mechanics' office, machine shop, locker room, and crew lunchroom. Incidental releases of maintenance-type chemicals could therefore also have entered the septic system.

The septic tank associated with the laboratory is reportedly located 4 feet out from the wash rack and is buried 4 feet deep (Russell 2006b). A leachfield is believed to exist in the general vicinity of the septic tank. Aerial photos from 1967 and earlier clearly indicate that the area around the septic tank location was unpaved. While review of the aerial photograph from 2004 documents that the area was paved, aerial photographs between 1967 and 2004 do not have sufficient resolution to determine whether or not the area was paved.

4.2.14.2 Constituents of Potential Concern

No sampling has been conducted for this AOC. Based on the unit operations, COPCs associated with AOC 17 consist of Title 22 metals, Cr(VI), pH, VOCs, TPH, and PAHs. DTSC identified SVOCs (including PAHs) as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.15 AOC 18 – Combined Wastewater Transference Pipelines

AOC 18 includes pipelines that were used to connect the cooling towers to the wastewater system including SWMUs 1 (Former Percolation Bed), 2 (Inactive Injection Well PGE-08), 5 (Sludge Drying Beds), 6 (Chromate Reduction Tank), 7 (Precipitation Tank), 8 (Process Pump Tank), 9 (Transfer Sump), and 10 (Old Evaporation Ponds) and Units 4.3 (Oil/Water Holding Tank), 4.4 (Oil/Water Separator), and 4.5 (Portable Waste Oil Storage Tank). Several of these pipelines were removed at the time of the closure of the hazardous waste management system, although some may still be in active use. There is limited information regarding these pipelines. No as-built drawings are available. Some additional information is available as part of a separate closure of the original oil/water separator system.

4.2.15.1 Description and History

Wastewater pipelines at the site were made of polyethylene, PVC, aluminum, cast iron, and vitrified clay (Mittelhauser 1986). These pipelines were used only to convey wastewater. Pipelines for gas transmission and stormwater are separate systems.

The hazardous waste management system and the related piping were closed, and piping was pressure tested for leaks as part of the closure process, as described in the *Phase 1 and 2 Closure Certification Report Hazardous Waste Management Facilities* (Mittelhauser 1990b). Laboratory data sheets are provided for this unit in Appendix C. The pipes that were removed as part of the closure operations are not part of the RFI process.

Except for the vitrified clay sludge pipeline (Pipeline H) and other short sections, the pipelines that were inactive at the time of the wastewater treatment system closure were pressure tested, inspected, and the wastewater from the pressure test was sampled. The wastewater samples were analyzed for Title 22 metals, pH, and fluoride.

Most of the wastewater pipelines passed within the limits of the test. Only one pipeline failed and was removed along with most of the other inactive pipelines. During removal of some pipes, there was visible staining below some sections of pipe. The interior of most of the pipelines had a visible green sludge and they were disposed of as hazardous waste. Several sections of pipeline, including D-3, F-5, G-1, all of A-3, G-2 and G-3, were not removed because they were inaccessible, sufficiently decontaminated, and still active, or they were long and difficult to remove. Pipelines A-3, G-2, and G-3 have been extensively flushed since 1985 when cooling water treatment with chromate ceased.

As part of the closure process, soil was removed from five areas with metals concentrations greater than background. A second round of confirmatory sampling was conducted to determine if the site was cleaned to background standards.

Pipeline H, the vitrified clay pipeline, was not pressured tested. After contaminated soils (visible green and white soils) identified in the vicinity of the pipeline were removed, a second round of soil sampling was conducted for each section of the pipeline to confirm that the area was clean. A sample was also taken where a portion of the pipeline had been removed a few years earlier.

The original OWSS was closed around 1990 (Mittelhauser 1990a) and there was some characterization of leaks near the pipelines associated with the OWSS. The OWSS 3-inch diameter underground piping was removed as part of the closure. Water from the

OWSS flowed into this pipe and discharged into the Chromate Reduction Tank. During the closure, leaks in the OWSS appeared to have occurred. Piping was removed where accessible, but some sections of the pipe were capped and left in place.

4.2.15.2 Constituents of Potential Concern

The pipelines were used to convey wastewater from various SWMUs at the facility. Based on the available data and operations history, PG&E identified Cr(T), copper, mercury, lead, molybdenum, nickel, zinc, Cr(VI), pH, TPH, and PAHs as COPCs for this unit. DTSC also identified other Title 22 metals, VOCs, and all other SVOCs (in addition to PAHs) as COPCs for this unit (DTSC 2006b). COPCs are anticipated to be limited to soil only.

4.2.16 AOC 19 – Former Cooling Liquid Mixing Area

AOC 19 was identified by routine inspection in January 2006. During the most recent test of the eyewash shower located in this area, droplets of green liquid were observed on the concrete pad below the eyewash shower (PG&E 2006e). AOC 19 was initially defined as consisting of the concrete pad area associated with the former cooling additive mixing shed. Recent information regarding potential leaks from the JCW system (Russell 2006b) has led to the inclusion of the adjacent jacket cooling water pumps and tank area into AOC 19. AOC 19 is located directly east of the compressor building and consists of the footprint of the JCW area. The former cooling additive mixing shed is located within this footprint between the JCW pumps and the JCW tanks (Figure 4-1). The pad from the former shed currently exists, and is located adjacent to a smaller concrete pad that presently serves as a base for an exterior employee emergency safety shower.

4.2.16.1 Description and History

The JCW system originally was designed with a hot well (a large rectangular concrete structure, partially below grade) that acted as a surge tank for the jacket cooling water system. Cooling water additives for this system were chromium-based until October 1985; since 1985, the additive package has been molybdate-based. Historic records (Betz 1987, 1989, 1990, 1991) indicate that concentrations of molybdenum as molybdate typically ranged from 300 to 800 ppm. The water was pumped from the hot well into the heat exchangers. There was no overflow control system on the hot well, and employees stated that they periodically overflowed. The hot well was approximately 10 feet deep, with about half that height above ground. The area covered by the hot well was about twice the area covered by the current concrete containment area for the jacket water tanks. The hot well was abandoned in place and replaced with jacket cooling water tanks (which still exist) prior to 1990. In the early 1990s, a construction project began to provide secondary containment in the area. During the construction, remnants of the old hot well were discovered.

A cleanup project was conducted to remove the hot well remnants. The remaining concrete and the soil contained in the hot well were removed, and the concrete debris and soil were sampled. The soil samples contained Cr(T) at 280 and 220 mg/kg respectively, and Cr(VI) at 4 and 3.6 mg/kg. The concrete sampled contained Cr(T) at concentrations ranging from 530 to 2,300 mg/kg, and Cr(VI) at concentrations ranging from 37 to 330 mg/kg. The two samples with the highest Cr(T) concentrations were analyzed for soluble Cr(T) and Cr(VI) using the California Waste Extraction Test (WET). The two samples were also tested for soluble Cr(T) using the toxicity characteristic leaching procedure (TCLP). All samples

exceed the soluble threshold limit concentration (STLC) and total threshold limit concentration (TTLC) criteria of 5 mg/L. The TCLP indicated soluble Cr(T) at 40 and 68 mg/L, respectively, while the WET indicated soluble Cr(T) at 78 and 110 mg/L, respectively. The soluble Cr(VI) concentrations were 64 mg/kg and 80 mg/kg, respectively. No soil samples were collected under the hot well.

The JCW system was also subject to occasional leaks from the hot well and pump and valve seal failure. The cooling water would flow onto the graveled area near the pumps. Larger leaks could sometimes result in releases onto the paved area between the JCW system and the visitor parking lot/warehouse, and then potentially down the main entrance road leading to the station (Russell 2006b).

The chemical additive shed was located between the jacket water pumps and tanks/hot well. The pad from the shed remains; it is adjacent to an eyewash station/emergency shower. Upon discovery of the droplets of green-colored water, sampling was conducted in the area. The affected area was covered with visquine to minimize employee contact and a wooden pad was installed over the pad to minimize human exposure and to allow the safety shower to remain in operation. During some time periods in the past, powdered coolant chemicals were mixed here, and then reportedly hand-added to the hot well (Russell 2006b). The area around the former shed/concrete pad is unpaved.

4.2.16.2 Constituents of Potential Concern

Soil samples were collected and analyzed for metals. WET tests were also performed for Cr(T) and Cr(VI). The soil samples collected in this area were limited to the area immediately adjacent to the concrete pad. Preliminary soil samples collected in the area indicate the presence of Cr(T) at concentrations exceeding CCR Title 22 TTLC concentrations; all other metals were below their respective TTLCs. Soil samples analyzed exceeded the STLC for Cr(T). Soluble Cr (VI) concentrations were below the STLC for all samples. Based on the operations history and available data, COPCs for soil associated with AOC 19 consist of Cr(T), Cr(VI), molybdenum, and potentially wear metals from the heat exchangers (copper, lead, nickel, and zinc). DTSC identified Title 22 metals and pH as COPCs for this unit (DTSC 2006b).

4.2.17 AOC 20 – Industrial Floor Drains

AOC 20 was identified at the request of DTSC (DTSC 2007d). AOC 20 consists of the industrial floor drains within the compressor station buildings and other industrial structures and facilities within the upper yard of the compressor station that are routed to the Oil/Water Separator System. AOC 20 does not include the miscellaneous floor drains in areas such as lavatories that drain to one of the three septic systems on the station.

4.2.17.1 Description and History

Several of the industrial buildings within the compressor station are equipped with floor drains that capture liquids released to the floor of the building, and convey the liquid to the OWSS. In addition, other industrial facilities, such as the steam cleaning area and the main jacket water surge tanks, are equipped with drains that capture overflow and spills. A pipe trench - that extends from just north of the steam cleaning area to the east side of the compressor building - also drains to the OWSS and has been included in this AOC.

Collectively, these drains are referred to as industrial floor drains to distinguish their use and intent from the storm drains that are also present at the facility. As shown in Figure 4-3, industrial floor drains are found in the following buildings and facilities: Compressor Building, Auxiliary Building, Jacket Cooling Water Pumps, Oil Storage Tank Area, Steam Rack (steam cleaning area), and Fire Water Pump Building (Former Water Softener Building).

Pipelines that are connected to the OWSS were historically made primarily of vitrified clay. Currently, the system contains a variety of pipe materials including reinforced fiberglass, PVC, cast iron, and Acrylonitrile-Butadiene-Styrene (ABS). The aboveground lines (shown on Figure 4-3) are all welded carbon steel pipe (PG&E 1991c). No sampling of the industrial floor drains has been conducted. Many of the pipes leading from the industrial floor drains to the OWSS are located under building floors and machinery, and/or are buried below ground and largely inaccessible.

The liquids potentially discharged to the industrial floor drains would consist primarily of liquids present within the industrial buildings and facilities. Liquids used in the operations in the industrial buildings included lubricating oil, oily water from the steam cleaning area and compressor and generator engine steam cleaning, jacket cooling water, and lubricating oil cooling water. The other two sources of liquids consist of the rainwater that collected in the pipe trench and hose-down water used when the pipe trench was cleaned. Drainage from the various cooling water systems would have contained chromium compounds and, later, molybdenum. No records exist of any specific releases to the industrial floor drains; however, both are expected to have captured incidental drips and spills during plant operations, as well as occasional washing liquid from floor cleaning within the buildings.

4.2.17.2 Constituents of Potential Concern

Based on the operations history, COPCs associated with AOC 20 include Cr(T), copper, mercury, lead, molybdenum, nickel, zinc, Cr(VI), TPH, and PAHs. COPCs are anticipated to be limited to soil. DTSC also identified all other Title 22 metals and VOCs as COPCs for this unit (DTSC 2007f).

4.3 Other Undesignated Areas

4.3.1 Potential Pipe Disposal Area

Metal pipelines insulated with asbestos may have been buried on the east side of the access road leading to the Old Evaporation Pond. A former employee described 20-foot lengths of asbestos-covered metal pipes being buried in a trench immediately east of the access road, across from the northern boundary of the former ponds. Potential constituents of concern in this area are limited to asbestos in soil.

4.3.2 Former 300B Pipeline Liquids Tank

PG&E's 300B pipeline was formerly equipped with a 900-gallon capacity above-ground drip tank. The drip tank was located east of the Topock Compressor Station, south of the compressor station access road, immediately west of the pipeline access road adjacent to the Colorado River, on the Havasu National Wildlife Refuge. The tank was 2 feet, 10 inches in

diameter, and 20 feet long. It was an aboveground tank located on two concrete saddle supports. The tank pad was unpaved (Trident 1995a). The tank was removed by 1995.

4.3.2.1 Description and History

The tank was designed to capture pipeline liquids. It was drained periodically (Russell 2006b). The tank was removed in 1995, and associated piping was emptied, disconnected, and capped at the abandoned ends (Trident 1996d). Trident Environmental and Engineering conducted an investigation of the former tank location in December 1994 (Trident 1995a). Oil staining was observed below the center and southern portions of the tank, extending out a maximum of 6 feet from the footprint of the former tank (Trident 1995a). The total stained area was estimated to be approximately 20 feet by 40 feet. Trident speculated that the oil had sprayed out of the southern outlet of the tank, and noted that oil staining was also observed on the near vertical embankment north of the tank location.

In 1994, oil-stained soil was observed underneath and immediately adjacent to a portion of the tank, and an initial site investigation was performed December 2, 1994. Samples were analyzed for TPH-motor-oil by gas chromatography/flame ionization detector. Low levels of TPH-motor-oil were detected at 1.2 and 2.0 feet bgs (Trident 1995a).

The tank was subsequently removed in 1995, and excavation of soil and confirmation sampling were performed between July and September 1996. On June 9, 1997, San Bernardino County issued a letter confirming the completion of the site investigation and remedial action of the contaminated soil at the site. Additional details regarding the closure of the Former 300B Pipeline Liquids Tank are presented in Section 5.0.

4.3.2.2 Constituents of Potential Concern

At the time the tank was in service, pipeline liquids would have contained both condensate and lubricating oils from compressors, with the latter representing an increasing fraction of the pipeline liquids after El Paso Natural Gas began removing the condensate prior to transmitting the natural gas in the mid-1980s. Condensate is composed primarily of straight-chain aliphatic hydrocarbons in the pentane to octane range ("natural gasoline") (Russell 2006b), whereas the lubricating oils are heavier weight hydrocarbons.

One surface soil sample was collected on April 16, 1996 to characterize the stained soil for future disposal. The soil sample was analyzed for TRPH by USEPA Methods 418.1, VOCs by USEPA Method 8240, SVOCs by USEPA Method 8270 PCBs by USEPA Method 8080, and California Assessment Method (CAM) 17 metals. The sample results were less than analytical limits for VOCs, SVOCs, and PCBs. Metals concentrations were reported as being near background. Metals, VOCs, SVOCs, and PCBs were sampled at a location coincident with the highest level of TRPH, and analytical results indicate no elevated concentrations of these constituents; therefore, COPCs associated with this area are limited to TRPH in soil. DTSC also identified Title 22 metals, VOCs, SVOCs PAHs, and PCBs as COPCs for this unit (DTSC 2007e).

TABLE 4-1

Summary of SWMUs and AOCs Identified in the RFA and CACA

RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California

RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
Unit 4.1	Percolation Pond	SWMU 1	Former Percolation Bed	Located in Bat Cave Wash immediately west of the compressor station. From 1951 to 1964, untreated wastewater (containing chromium) was discharged to the wash. Single step treatment of wastewater to reduce Cr(VI) to Cr(III) began in 1964. A percolation bed was also created in about 1964 and reportedly covered an area of about 17,600 square feet. Wastewater discharged to this area was allowed to percolate into the ground and/or evaporate. In 1969, a two-step wastewater treatment system was installed to both reduce Cr(VI) to Cr(III), and then to remove Cr(III) from the wastewater. Reportedly received an estimated 6 million gallons per year of treated wastewater comprised of cooling water blowdown (95%) and oily water (5%). Treated wastewater contained residual chromium and TDS. Disposal of wastewater to Bat Cave Wash ceased in 1970 ^(e) .	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity ^(f)	Cr(T), Cr(VI), Cu, Hg, Ni, Pb, Zn, pH, PAH, and TPH	Cr(T), Cr(VI), Cu, Ni, Pb, Zn, pH, electrical conductivity, and TPH
Unit 4.2	Injection Well	SWMU 2	Inactive Injection Well PGE-08	Located in the lower yard on the west side of the compressor station. Installed in 1969 to facilitate the underground injection of treated wastewater at depths in excess of 405 feet below ground surface. An estimated 42 million gallons of treated wastewater were injected into well PGE-08 between May 1970 and December 1973 ^(e) . PGE-08 still exists, but was taken out of service in December 1973.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None	Cr(T), Cr(VI), Cu, Ni, Pb, Zn, pH, electrical conductivity, and TPH

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RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
Unit 4.3	Oil/Water Holding Tank	None	None	Formerly located in the southern portion of the lower yard. The tank was installed in 1951 and consisted of a cylindrical steel tank with a capacity of 3,000 gallons. The tank was used to collect oily wastewater generated at the facility. Wastewater collected in this tank was directed to the OWS (Unit 4.4). The tank was removed during the period between November 1988 and February 1989.	None	Cr(T), Cu, Ni, Pb, Zn, Cr(VI), TPH, and PAHs	None
Unit 4.4	Oil/Water Separator	None	None	Formerly located in the southern portion of the lower yard. The unit was installed in 1951. It was constructed of concrete and was about 4.5 feet deep, 15 feet long, and 6 feet wide. The unit received oily wastewater from the adjacent oil/water holding tank (Unit 4.3). From 1951 to 1970, treated wastewater from this unit was discharged to the former percolation bed (SWMU 1) in Bat Cave Wash, and from 1970 to December 1973, treated wastewater from this unit was discharged to injection well PGE-08 ^(e) . From 1973 to about 1988, treated effluent from the unit was ultimately disposed in the evaporation ponds (Unit 4.11, SWMU 10). This OWS was removed during the period between November 1988 and February 1989.	None	Cr(VI), Cr(T), Cu, Ni, Pb, Zn, TPH and PAHs	None

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RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
Unit 4.5	Portable Waste Oil Storage Tank	None	None	Formerly located in the lower yard adjacent to the OWS (Unit 4.4). It was a steel, cylindrical tank about 2 feet in diameter and 6 feet long mounted horizontally on a trailer. It was connected to a suction pump in the OWS by hose and was used to remove floating oils from the OWS. The tank sat on a concrete pad (10 feet by 8 feet) that had a 6-inch concrete berm on 3 sides. When the tank was full, it was moved to the east end of the facility and the contents were transferred to the waste oil storage tank (Unit 4.6). The tank was removed from service in 1989 and subsequently removed from the facility.	None	TPH and PAHs	None
Unit 4.6	Waste Oil Storage Tank	None	None	Located in the product oil and fuel storage area on the east side of the facility. The storage area is located within a concrete secondary containment unit. The tank is a vertical steel vessel about 8 feet in diameter and 20 feet high. Waste oils generated at the facility are collected in this tank. Waste oil is periodically removed from the tank and taken offsite for recycling. The tank is still in active use.	None	None	None
Unit 4.7	Chromate Reduction Tank	SWMU 6	Chromate Reduction Tank	Formerly located in the southern end of the lower yard. The tank was constructed of steel and measured 10 feet high and 5 feet in diameter. Cooling water blowdown containing chromium was treated in this tank from 1969 to October 1985 by injecting the wastewater with sulfur dioxide. The treatment reduced Cr(VI) to Cr(III). Treated wastewater flowed from this tank to the Transfer Sump (SWMU 9).	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	TPH and PAHs	None

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Summary of SWMUs and AOCs Identified in the RFA and CACA

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RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
Unit 4.8	Transfer Sump	SWMU 9	Transfer Sump	Formerly located in the lower yard. This sump was a pre-fabricated concrete septic tank measuring 20 feet deep (18.5 feet below grade) and 3 feet in diameter. It was used to transfer treated cooling tower blowdown from the Chromate Reduction Tank (SWMU 6) to the Precipitation Tank (SWMU 7) from 1969 through October 1985. It also received treated wastewater from the OWS. The sump was removed from service in October 1985, and was physically removed between November 1989 and March 1990.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	TPH and PAHs	None
Unit 4.9	Precipitator Tank	SWMU 7	Precipitation Tank	Formerly located at the south end of the facility, just south of the former 'water treatment building' (currently known as the "storage building"). This tank was constructed of steel and measured 15 feet high by 13 feet in diameter. It was used to treat cooling water blowdown from 1969 through October 1985 by injecting sodium hydroxide into the wastewater to precipitate out Cr(III). Chromium hydroxide sludge was produced in this process. Treated wastewater was discharged to the Process Pump Tank (SWMU 8) and the sludge was transferred to the Sludge Drying Beds (SWMU 5). The tank was removed from service in October 1985, and was physically removed between December 1998 and March 1990.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None ^(h)	None

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RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
Unit 4.10	Process Pump Tank	SWMU 8	Process Pump Tank	Formerly located adjacent to the Precipitation Tank (SWMU 7). This tank was constructed of steel and measured 8 feet high by 5.5 feet in diameter. It was used as a holding tank for treated cooling tower blowdown prior to discharge. Treated wastewater from this system was sent to the former percolation bed (SWMU 1) from late 1969 to May 1970; to injection well PGE-08 (SWMU 2) from May 1970 to December 1973; and to the Evaporation Ponds (SWMU 10) from December 1973 to October 1985 ^(e) .	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	TPH and PAHs	None
Unit 4.11	Four Evaporation Ponds	SWMU 10	Old Evaporation Ponds	Formerly located west of the facility on property owned by the HNWR, SWMU-10 consists of four former single-lined evaporation ponds that occupied a total surface area of about 181,00 square feet (4.15 acres). The ponds were used from 1971 to October 1985 to receive treated effluent from the facility. ^(e)	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None ^(h)	None
Units 4.12 and 4.13	East and West Chromic Hydroxide Sludge Drying Beds	SWMU 5	Sludge Drying Beds	Formerly located in the lower yard. The two concrete beds were constructed in 1951 and measured approximately 20 feet by 50 feet each. The beds were originally used from 1951 to about 1961 to dehydrate lime sludge from the facility's Permutit water softening system. From 1964 to 1969, a single-step chromium treatment pond was constructed in one of the beds. From 1969 through October 1985, the beds were used to periodically dehydrate chromium hydroxide sludge prior to disposal. The beds were removed from service in October 1985, and were physically removed between November 1988 and February 1989.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	TPH and PAHs	None

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RFA Designation ^(a)	RFA Identification ^(a)	CACA Designation ^(b)	CACA Identification ^(b)	Description	Constituents of Potential Concern in CACA ^(c)	Constituents of Potential Concern in this RFI – Soil ^(d)	Constituents of Potential Concern in this RFI – Groundwater ^(d)
None	None	SWMU 3	PG&E Inactive Well #6 (PGE-06)	Well PGE-06 was drilled and completed in 1964 as a standby well to provide a backup source of industrial water supply for the compressor station. The well was only used for a short period of time during the construction of Interstate 40 (I-40) to produce water for dust suppression. The well has never been used to supply water to the compressor station.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None	None
None	None	SWMU 4	PG&E Inactive Well #7 (PGE-07)	Well PGE-7 was drilled and completed in 1964 as a standby well to provide a backup source of industrial water supply for the compressor station. There are no records that indicate this well was ever used to produce water for any purpose. This well was converted to a monitoring well for injection well PGE-08 in 1969.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None	None
None	None	AOC 1	Area Around Percolation Bed	AOC 1 consists of the area surrounding the Percolation Beds (SWMU 1); however, the limits of AOC 1 have not been formally defined. Based on historic discharge information, AOC 1 includes the floor of Bat Cave Wash from the discharge area to the railroad tracks.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	Cr(T), Cr(VI), Cu, Hg, Ni, Pb, Zn, pH, PAH, and TPH	Cr(T), Cr(VI), Cu, Ni, Pb, Zn, pH, EC, and TPH
None	None	AOC 2	Area Around Inactive Injection Well PGE-08	AOC 2 consists of the unpaved soil area around injection well PGE-08 (SWMU 2). Because wastewater was injected at depth (greater than 405 feet below ground surface), surface releases are not likely.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None	None
None	None	AOC 3	Area Around PG&E Inactive Well #6 & #7 (PGE-06 and PGE-07)	AOC 3 consists of the unpaved soil areas around standby production wells PGE-06 and PGE-07. There is no evidence that any wastes were disposed of into or around these wells.	Cr(T), Cr(VI), Ni, Cu, Zn, pH, and electrical conductivity	None	None

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Notes: ^(a) Designation and identification per the <i>RCRA Facility Assessment</i> (Kearny 1987). ^(b) Designation and identification per the <i>Corrective Action Consent Agreement</i> (DTSC 1996). ^(c) COPCs from the <i>Corrective Action Consent Agreement</i> (DTSC 1996). ^(d) COPCs as developed in this RFI. Additional COPCs have been identified by DTSC (DTSC 2006b). These additional COPCs are described in the discussion of each SWMU, AOC or unit. ^(e) Some wastewater may have been discharged to Bat Cave Wash from 1970 through 1971 when PGE-08 was offline; some wastewater was also discharged to Pond 1 from 1971 to 1973 when PGE-08 was offline. ^(f) Electrical conductivity is a measurement that includes naturally-occurring minerals such as sodium, chloride, calcium, and sulfate. ^(g) These units were closed and removed between 1988 and 1990; therefore, there are no current COPCs. ^(h) The hazardous waste treatment system was clean closed by PG&E between 1989 and 1993, and DTSC issued a closure certification acceptance letter in 1995; therefore, there are no current COPCs.					Sources: <i>RCRA Facility Assessment</i> (Kearny 1987) <i>Corrective Action Consent Agreement</i> (DTSC 1996) <i>Current Conditions Report</i> (Alisto 1997) <i>RCRA Facility Investigation Work Plan</i> (Alisto 1997) <i>Work Plan for Additional Soils Sampling</i> (E&E 2000b) <i>RCRA Facility Investigation Report</i> (E&E 2004)		

TABLE 4-2

Summary of Other AOCs^(a)

RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California

Designation	Identification	Subareas	Subarea Designation in this RFI ^(b)	Description	Constituents of Potential Concern ^(c)
AOC 4	Debris Ravine	Lower Road Lower Hillside Upper Road Upper Hillside		Located at the southern end of PG&E property. A narrow, steep-sided arroyo that drains to Bat Cave Wash. The southern end of the PG&E property has historically been used to store and/or dispose of scrap debris. Some of the debris ended up at the bottom of the ravine (e.g., wood, metal, concrete and some small quantities of white powder).	Title 22 metals and Cr(VI), PAHs and asbestos.
AOC 5	Cooling Tower A	None		AOC 5 consists of the area around Cooling Tower A including the former chemical storage shed, sulfuric acid tank, and current cooling water treatment product tanks.	Cr(T), Cr(VI), Cu, Ni, Pb, Zn, and pH.
AOC 6	Cooling Tower B	None		AOC 6 consists of the area around Cooling Tower B including the former chemical storage shed, sulfuric acid tank, and current cooling water treatment product tanks.	Cr(T), Cr(VI), Cu, Ni, Pb, Zn, and pH.
AOC 7	Hazardous Materials Storage Area	None		A chemical storage building and loading dock located in the southeastern portion of the compressor station. The area has historically been used for chemical product storage. Small quantities of chemical products are still stored in this area. A portion of the area is currently concrete-lined with secondary containment walls, and it has been used since the mid 1980s as a hazardous waste accumulation area.	Title 22 metals, VOCs, SVOCs, PCBs, and TPH.
AOC 8	Paint Locker	None		A small, fire-safe flammable materials locker located in the southeastern portion of the compressor station used for the storage of minor quantities of paint (about 100 gallons).	VOCs, TPH, and Title 22 metals.
AOC 9	Southeast Fence Line (Outside Visitor Parking Lot)	None		A small area of discolored (i.e., green) surface soil observed near the southeast fence line in early 2000. Some soil removal has occurred in this area. Soil samples collected at the time of soil removal indicate the presence of Cr(T) and Cr(VI).	Cr(T), Cr(VI), TPH, PAHs, Mo, and wear metals (Cu, Pb, Ni, Zn).
AOC 10	East Ravine	Southeast Fence Ravine Low Area Downstream of SE Fence Low Area Behind Berm Low Area Behind Berm	10a 10b 10c 10d	The East Ravine is a small ravine starting near the southeast fenceline of the compressor station and extending eastward to the Colorado River. The ravine is about 1,600 feet long and is bisected by one constructed dam and two dirt roads that also form dams. Behind each dam is a small drainage depression where water ponds during storm events and fine-grained sediments have accumulated.	Cr(T), Cr(VI), Mo, Cu, Ni, Pb, Zn, PAHs, and TPH.

TABLE 4-2

Summary of Other AOCS^(a)

RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California

Designation	Identification	Subareas	Subarea Designation in this RFI ^(b)	Description	Constituents of Potential Concern ^(c)
AOC 11	Topographic Low Areas	Low Area Near MW-12	11-a	Certain drainage channels around the compressor station drain into topographic low points where runoff ponds and/or infiltrates into the ground. The five identified low areas may have received runoff from the compressor station.	Cr(T), Cr(VI), Cu, Pb, Ni, Zn, PAHs, and TPH.
		Low Area Near Road	11-b		
		Remnant Dam in Lower Portion of Ravine	11-c		
		Small low area by pipeline alignment	11-d		
		Remnant Dam in Upper Portion of Ravine	11-e		
AOC 12	Fill Area	North Bench Near Metering Station	12-a	Located on a bench by the Transwestern Intertie, these three small areas been filled and may have received construction debris or other residues.	Title 22 metals, Cr(VI), PAHs, and TPH.
		Near Northwest Corner of Transwestern Intertie Fence	12-b		ACM, Title 22 metals, TPH, PAHs, VOCs
		Near Southwest Corner of Transwestern Intertie Fence	12-c		ACM
AOC 13	Unpaved Areas at Compressor Station	None	None	Unpaved areas within the compressor station or immediately adjacent to potential source areas.	Cr(T), Cr(VI), Cu, Pb, Ni, Zn, Mo, Hg, PAHs, and TPH, and pH.

TABLE 4-2

Summary of Other AOCs^(a)

RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California

Designation	Identification	Subareas	Subarea Designation in this RFI ^(b)	Description	Constituents of Potential Concern ^(c)
AOC 14	Railroad Debris Site	None	None	A 1.5-acre area located about 1,000 feet north of the compressor station on property owned by the HNWR. It is bounded by Interstate 40 (I-40) to the south, the BNSF railroad tracks to the north, Bat Cave Wash to the west and the former Route 66 alternate alignment to the east. Debris in this area consisted of chunks of asphalt, railroad ties, piping, and a 2-foot to 3-foot-thick lens of white powder (likely lime sludge). Asbestos-containing material has also been identified at this site. Removal actions were conducted to remove the white powder and ACM. Small amounts of the white powder remain. Based on review of aerial photographs, this site was apparently used by others prior to its use by PG&E. Historical operations by others at this site are unknown.	Title 22 metals, Cr(VI), SVOCs including pentachlorophenol, TPH, and asbestos.
AOC 15	Auxiliary Jacket Cooling Water Pumps	None	None	Three AJCW pumps are located in a small unpaved area southeast of the main compressor building. The pumps are part of the cooling water system and handled chromium-containing cooling water.	Cr(T), Cr(VI), Cu, Mo, Ni, Pb, Zn, and pH.
AOC 16	Sandblast Shelter	None	None	Located near injection well PGE-08. Apparently used to prepare metal at the facility for protective coating. The area is unpaved.	Title 22 metals.
AOC 17	Onsite Septic System	None	None	Onsite septic system connected to the facility laboratory and machine shop. Small quantities of laboratory wastes from cooling water monitoring activities were discharged to the septic system.	Metals, Cr(VI), VOCs, TPH, PAHs, and pH.
AOC 18	Combined Wastewater Transference Pipelines	None	None	All pipelines connecting cooling towers to wastewater system including SWMUs 1, 2, 5, 6, 7, 8, 9, and 10 and Units 4.3, 4.4, and 4.5. A portion of these pipelines were removed during the closure of the hazardous waste treatment system and replacement of the old OWS system.	Cr(T), Cu, Hg, Pb, Mo, Ni, Zn,, Cr(VI), pH, TPH, and PAHs.
AOC 19	Former Cooling Liquid Mixing Area	None	None	Located adjacent to the compressor building and consists of the footprint of the jacket cooling water area. The former cooling additive mixing shed is located within this footprint between the JCW pumps and the jacket cooling water tanks/former hot well.	Cr(T), Cr(VI), Cu, Mo, Ni, Pb, and Zn.

TABLE 4-2

Summary of Other AOCs^(a)*RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California*

Designation	Identification	Subareas	Subarea Designation in this RFI ^(b)	Description	Constituents of Potential Concern ^(c)
AOC 20	Industrial Floor Drains	None	None	Industrial floor drains and associated pipelines leading to the OWSS. Floor drains and overflow drains are located in the Compressor Building, Auxiliary Building, Jacket Cooling Water Pumps, Oil Storage Tank Area, Steam Rack (steam cleaning area), and Fire Water Pump Building (Former Water Softener Building).	Title 22 metals, Cr(VI), TPH, VOCs, and PAHs

Notes:

^(a) Considered AOCs by DTSC in letters to PG&E dated January 4, 2006 and July 13, 2006.^(b) Subarea designation is shown on Figure 4-1.^(c) COPCs developed in this RFI. COPCs are limited to soil; there are no COPCs for groundwater associated with these AOCs. Additional COPCs have been identified by DTSC (DTSC 2006b, 2007f). These additional COPCs are described in the discussion of each SWMU, AOC or unit.

Sources:

Work Plan for Additional Soils Sampling (E&E 2000b).*Draft RCRA Facility Investigation Report* (E&E 2004).

TABLE 4-3

Summary of Other Undesignated Areas

RCRA Facility Investigation/Remedial Investigation (Volume 1), PG&E Topock Compressor Station, Needles, California

Identification	Description	Constituents of Potential Concern ^(a)
Potential Pipe Disposal Area	An employee reported that 20 foot lengths of asbestos-covered piping were buried in a trench on the East side of the access road by the Old Evaporation Ponds.	ACM
Former 300B Pipeline Liquids Tank	The Pipeline Liquids Tank located east of the compressor station was removed in 1995. Apparent leaks on the south side of the tank resulted in TRPH contamination below the southern end of the tank. Soil was removed in 1996, and the site was closed by San Bernardino County in 1997. Sample analysis indicated that PCBs, VOCs, and SVOCs were less than analytical detection limits. CAM 17 metals were at background levels, and TRPH was below 150 mg/kg.	TRPH

Notes:

^(a) COPCs developed in this RFI. COPCs are limited to soil; there are no COPCs for groundwater associated with these areas. Additional COPCs have been identified by DTSC (DTSC 2007e). These additional COPCs are described in the discussion of each SWMU, AOC or unit.

Sources:

*Russell 2006b**Trident 1996d*

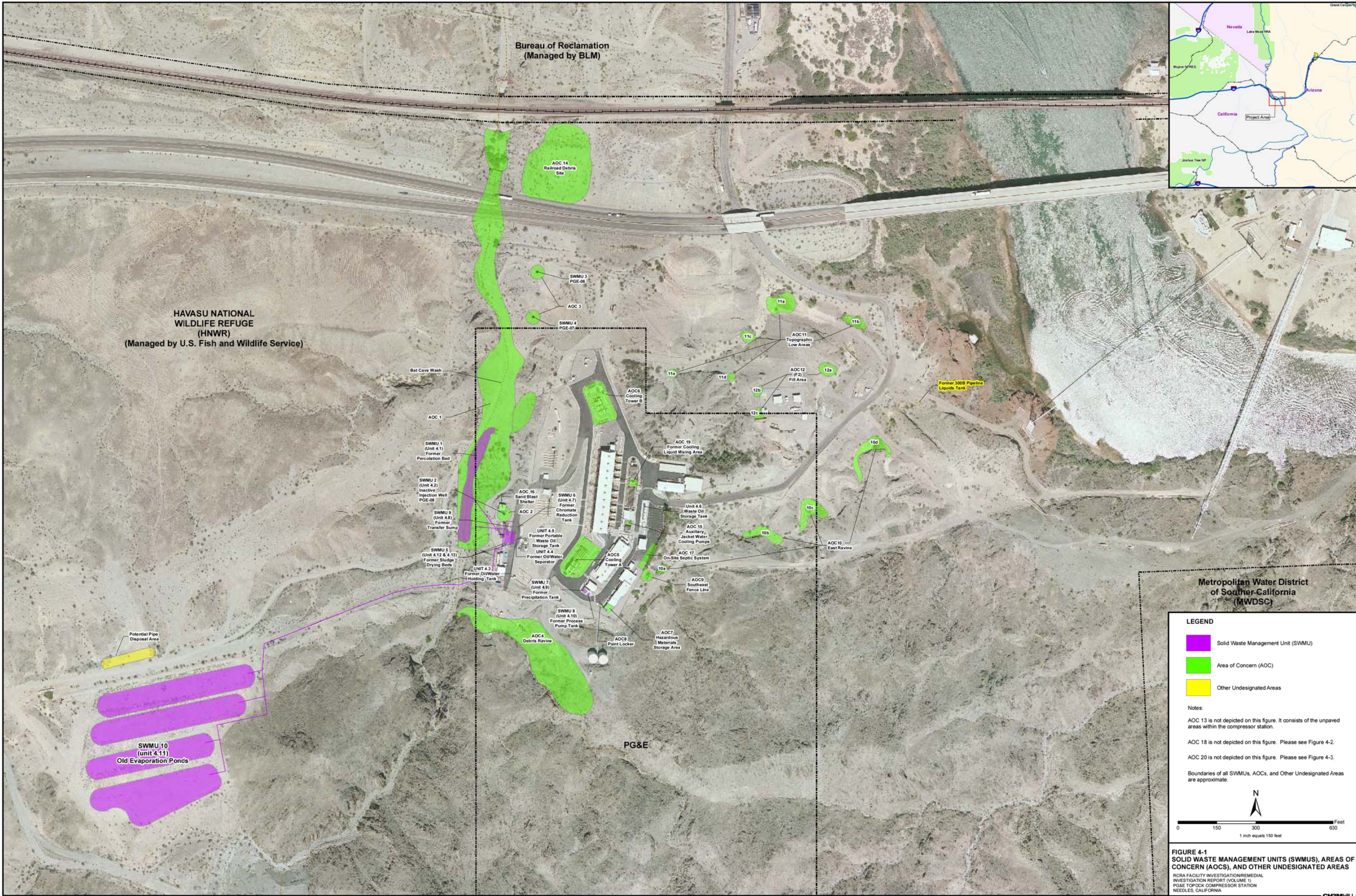
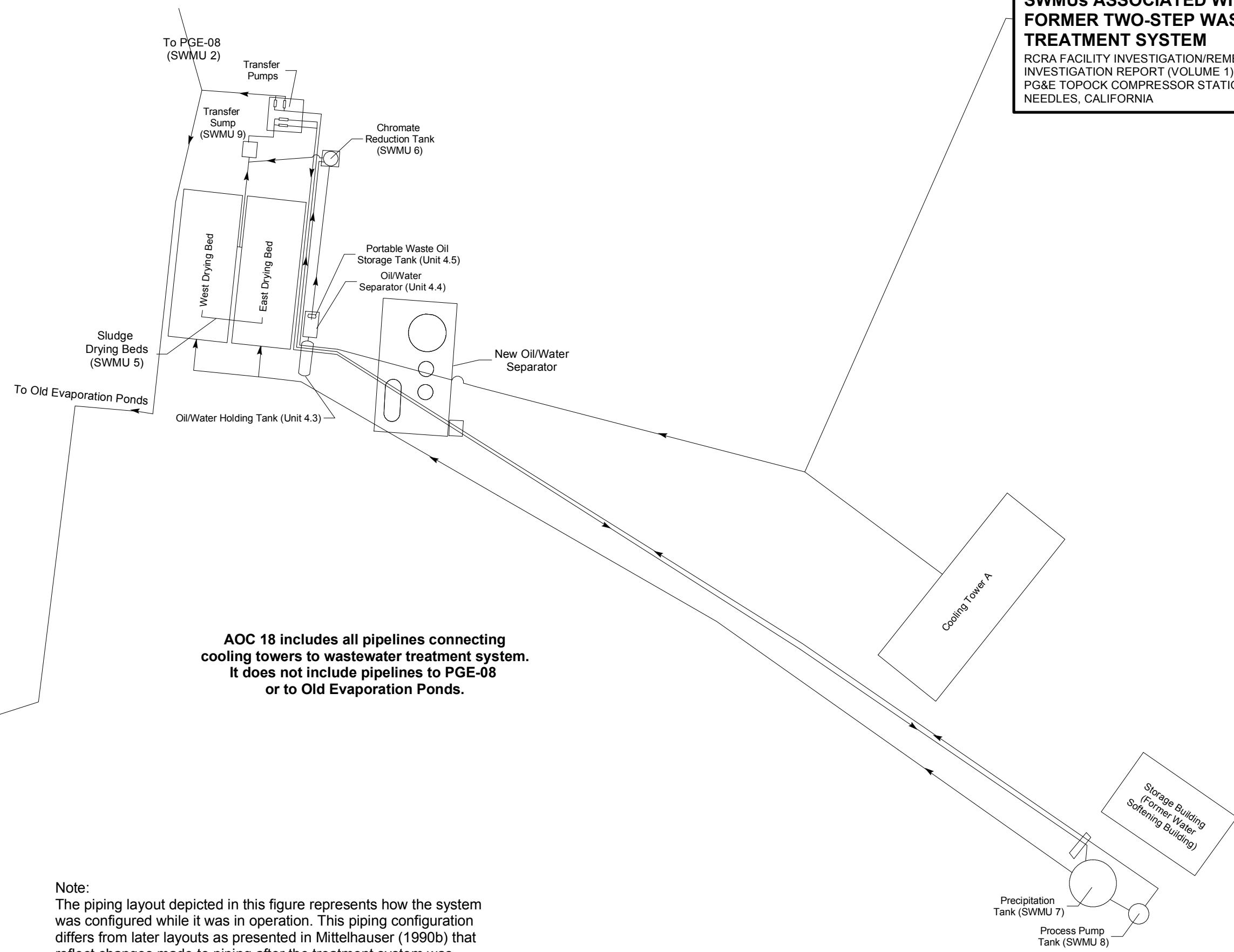


FIGURE 4-2
SWMUs ASSOCIATED WITH THE
FORMER TWO-STEP WASTEWATER
TREATMENT SYSTEM

RCRA FACILITY INVESTIGATION/REMEDIAL
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 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

CH2MHILL



AOC 18 includes all pipelines connecting
cooling towers to wastewater treatment system.
It does not include pipelines to PGE-08
or to Old Evaporation Ponds.

Note:
 The piping layout depicted in this figure represents how the system was configured while it was in operation. This piping configuration differs from later layouts as presented in Mittelhauser (1990b) that reflect changes made to piping after the treatment system was removed from service. All piping locations are approximate.

